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ABSTRACT

Drawing on interviews, documents, and eight studies, this policy research study offers information and recommendations in order to fulfill the responsibility of the National Council on Educational Research to establish general policies for, and review the conduct of, the National Institute of Education (NIE). Questions guiding this study are: the subject and costs of research carried out by NIE's labs and centers; the perceived impact of this research and development on improving educational practices; and appropriate priorities for NIE labs and centers and strategies for more effective dissemination of their findings. Following an executive summary and an introduction, a chapter on reforming American education summarizes a content analysis of national studies, a survey, and additional documents. The third chapter considers the role of the federal government in creating knowledge for educational reform, and the fourth chapter offers three historical perspectives on NIE's labs and centers. Barriers to effective dissemination of educational research are analyzed in the fifth chapter, and the sixth chapter presents the study's major conclusions and recommendations for improving policy management of the delivery system of NIE labs and centers. Among the appendixes are descriptions of eight projects that contributed to the overall study, steps in designing the research matrix, and lab and center missions and budgets. (MJL)

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CREATING AND DISSEMINATING KNOWLEDGE FOR EDUCATIONAL REFORM

A Report to the National Council on Educational Research

EA 016 721

Center for Leadership Development

CREATING AND DISSEMINATING KNOWLEDGE FOR EDUCATIONAL REFORM

A Report to the
National Council on Educational Research

February 1984

FOREWARD

The executive summary and revised final report for Project #NIE-G-83-0014 were prepared for the National Council on Educational Research (NCER). The Project Director was Kendall O. Price, Ph.D., President, Center for Leadership Development, Los Angeles, California, and the project was carried out under a grant to the Sequoia Institute, Sacramento, California, Dr. Robert B. Hawkins, President.

The Project Director was assisted in supervising the research for the study and in co-authoring the final report by: Kent Lloyd, Ph.D., Director of the Center for Leadership Development's Washington, D.C. office, and former Deputy Undersecretary for Management, U.S. Department of Education; and Mr. Wayne M. Burnette, Chairman of the Board, Center for Leadership Development, and former executive with Pacific Telephone Company.

Special thanks are given to the following for their support and assistance: Dr. Hawkins; Dr. Richard La Pointe, former Executive Director, NCER; Dr. Edward G. Lynch, Acting Executive Director, NCER; and members of the National Institute of Education staff including Dr. Manuel J. Justiz, Director; Mr. Alan R. Wilson, Acting Deputy Director; Dr. Thomas G. Carroll, Coordinator for Labs and Centers; and Dr. Robert C. Leestma, Associate Director and Dr. John C. Egermeier, Acting Assistant Director, Dissemination and Improvement of Practice Program, together with the professional staff of the Information Resource Center. Gratitude also is expressed to the 72 educational research and development statesmen and the 93 county and district school superintendents in California who gave their time to be interviewed for this study. Coding supervision, editing and typing were done by Carole Geisler, Diane Ramsey, Mary Bradford and Bonnilee Price.

The conclusions and recommendations in the final report do not necessarily reflect those of the National Council on Educational Research, the National Institute of Education or the Sequoia Institute, but do represent the views of the Center for Leadership Development, a private, non-profit, educational research and management development institution founded in 1967.

Additional copies of the final report including the executive summary and appendices are available for $9.50 each; and copies of the executive summary alone are available for $2.50 apiece, from the Center for Leadership Development, 5456 McConnell Avenue, Los Angeles, California 90066.

KOP
Los Angeles, California
February 1, 1984

EXECUTIVE SUMMARY

PURPOSE

The purpose of this policy research study is twofold: (1) to provide information and recommendations by which the National Council on Educational Research can carry out its Congressionally mandated responsibility to establish general policies for and review the conduct of NIE; and (2) to assist the National Institute of Education in meeting its policy management challenge to ensure that federal educational R&D resources will be available to state and local educators to help reform public and private schools. The study focuses on three critical policy research questions:

1. What research and development have NIE's Labs and Centers carried out and at what cost?

2. What has been the perceived impact of this research and development on improving the practices of education?

3. What should be the research priorities of NIE's Labs and Centers and what strategies should they utilize to more effectively disseminate and encourage use of their findings?

METHODOLOGY

Data for this policy study was collected from two main sources: (1) documents from the National Institute of Education and the Labs and Centers, public hearings and meetings, and professional reports, books and journal articles; and (2) interviews with representatives of educational interest groups, public and private research specialists and scholars, National Institute of Education officials, Lab and Center directors, and local school district superintendents.

Study recommendations are based on the data from the following eight studies:

1. An analysis of over 6,900 research reports and articles published in the ERIC system by 17 Labs and Centers from 1965 to 1983;

2. A 1983 National Experience Survey of 72 educational statesmen, educational research and development specialists, former directors of the National Institute of Education, Lab and Center directors, executive directors of national educational associations, and Congressional staff members;

3. A content analysis of the summary of the National Institute of Education's National Lab and Center regional meetings held during the summer of 1983;

4. A content analysis of educational articles from nine public policy, educational association and educational research journals from 1962 through 1983;

5. A comparative analysis of eight of the most critical research-based national educational reform studies reported in 1983;

6. A state survey of 93 county and local district superintendents conducted in California during 1983;

7. A reanalysis of two U.S. Department of Education's Service Delivery Assessment studies of NIE's Labs (1982) and Centers (1983); and

8. A review of the October 1983 reports and recommendations from the five NIE National Lab and Center study groups preparing for recompetition.

FINDINGS

Historical Background. As historical background to better understand the federal R&D system and the research findings, a thumbnail sketch was provided of events leading up to the creation of Labs and Centers and highlights of activities since then in four main periods -- (1) project-by-project educational R&D period prior to 1963; (2) institution based period under the U.S. Office of Education from 1963-71; (3) program purchase policy period under NIE from 1972-78; and (4) institutional support under NIE and the newly formed U.S. Department of Education from 1979-83.

Reform Studies. Based on a review of eight major national reform studies conducted in 1983*, the perceptions of participants from our

*(1) A Nation At Risk: The Imperative for Educational Reform; (2) Action for Excellence: A Comprehensive Plan to Improve our Nation's Schools; (3) Academic Preparation for College: What Students Need To Know And Be Able To Do; (4) Making the Grade; (5) The Paideia Proposal: An Educational Manifesto; (6) Educating Americans for the 21st Century: A plan of action for improving mathematics and technology education for all American elementary and secondary students so that their achievement is the best in the world by 1995; (7) High School: A Report on Secondary Education in America; and (8) A Place Called School: Prospects for the Future.

National Experience Survey, NIE's 1983 national hearings, and two Department of Education's Service Delivery Assessments we found that there is wide agreement about the need for educational reform as well as specific areas requiring reform. Improved teacher preparation is probably the most important, followed closely by a need to strengthen curriculum in mathematics, science and English. More effective instruction, classroom management and school leadership are frequently mentioned along with a continuing concern for a definition of the federal role in education.

Role of Federal Government in Educational R&D. Because of its unique perspective and its responsibility for the national interest, there also was wide agreement among participants in this study that it is the Federal Government's role to fund, create and disseminate educational R&D. Once this new knowledge has been created and disseminated, it becomes the responsibility of local officials -- school boards, administrators, teachers and parents -- who must decide if and how this knowledge can best be used to reform their public or private schools and colleges.

Policy Journals. While the federal educational R&D system evolved during the past two decades, interest groups were identifying their own educational policies as reflected in published journals. In comparing the number of educational articles published by journals representing liberal (New Republic, Nation and Today's Education), conservative (National Review, Public Interest and Independent School), federal educational (American Education), and educational research (Phi Delta Kappan and American Educational Research Journal) communities, the four highest priority content areas mentioned by all interest groups were higher education, the federal educational role, instruction and teaching process and the educational environment. Teacher preparation was mentioned among the top ten priorities of three of the four interest groups.

Lab and Center Publications. In order to determine what research had been published by Labs and Centers since 1965 we searched all R&D publications and reports submitted to ERIC by the 17 Labs and Center. The resulting 6,918 abstracts were classified by 61 educational subject matter categories under five major areas including individual student development, curriculum and teaching, local school management, community and state responsibilities, and national resources. No attempt was made to evaluate the quality of the research or to determine its relative cost-effectiveness but only to categorize it by subject matter area. Two thousand six hundred ninety-eight of these publications were the work of Labs and 4,220 the work of Centers. The greatest percentage of this R&D work by both the Labs and the Centers was in curriculum and teaching -- 70% for Labs and 75% for Centers. The next highest concentration was in local school management -- 18% for Labs and 11% for the Centers. R&D publications on student development were 8% and 9% respectively, while research on community and state responsibilities, including higher education and state governance, is 3% and 4%. Research publications on national issues in education such as civil rights and international education represented only 1% each of the total Lab and Center research output.

In comparing Lab and Center output by specific priorities dominating both lists is vocational and career education. Also ranked among the top five priorities on both lists are English, instruction and the teaching process, and mathematics.

From our findings about the content areas on which Lab and Center publications have focused, the approximate $560 million in federal funds they've spent over the past 20 years have been for research in many of the same content areas addressed by educational interest groups in their policy journals. The Lab and Center research publications also cover many of the same content topics recommended for improvement by the 1983 national reform studies and the recent priorities of Congress. It appears, therefore, that during the coming decade, Labs and Centers with an effective federal dissemination strategy could play a critical role in local educational reform.

Stages of Research Cycle. In addition to analyzing the educational content areas in which Labs and Centers published, we also reviewed the percentages of their publications in the various stages of the research cycle -- research, development, dissemination, utilization and evaluation. Several important findings were discovered: (1) We found little basic research being conducted -- it was all applied research though much of it was long-range; (2) There appears to be no important difference among the percent of publications by Labs and Centers in the research, development, and dissemination stages of the R&D cycle categories, and little difference in the utilization and evaluation categories; and (3) Data indicated that the greatest number of Lab and Center publications have been on reports of dissemination activities and research on the dissemination process, with a relatively lower percentage of research publications describing utilization and evaluation activities.

STUDY CONCLUSIONS

1. After a review of eight national educational reform studies, we conclude that there is widespread agreement on a critical need to reform our nation's schools, as first reported by the National Commission on Excellence in Education in April 1983.

2. After completing the present policy study, we conclude that educational R&D can become a potentially powerful resource for educational reform.

3. According to Congressional mandate and the expectations of policymakers, the R&D community and educational practitioners, we conclude that the Federal Government has the central leadership role in funding, creating, and disseminating educational research and development to local public and private schools, colleges and universities.

4. After a broad policy analysis of the past work of NIE's Labs and Centers, we conclude that educational R&D can be synthesized and adapted for the benefit, improvement and reform of American education.

5. After assessments, reports, and perceptions by national policy-makers, R&D specialists and educational practitioners cited in this study, we conclude that NIE's Lab and Center R&D has not been effectively disseminated.

RECOMMENDATIONS

For the U.S. Congress

Recommendation #1: That Congress continue funding NIE's Labs and Centers through FY85 if; (1) all Labs and Centers undergo recompetition by Spring 1985; if (2) NIE designs and implements an effective policy management system for its present Labs and Centers; and, if (3) NIE officials demonstrate their capability to conduct a responsible recompetition with consultation by all major participants.

For the National Institute of Education

Recommendation #2: That NIE conduct a policy management study to redefine its mission, clarify its reporting relationship to the Department of Education and improve its policy management of Labs and Centers in preparation for Congressional reauthorization.

Recommendation #3: That the mission of NIE be refined to include the following major activities:

a. Prepare for the Secretary of Education an annual "State of Education Report" to the Congress based on a yearly national assessment of student performance.

b. Conduct an indepth "Commission on Excellence Revisited" needs assessment of American education every five years from which a national R&D research agenda can be developed and updated.

c. Conduct national evaluation studies of the effectiveness of major educational programs funded by Congress.

d. Be given the responsibility by the Secretary of Education for coordinating all R&D activities for the Department of Education.

e. Identify on an ongoing basis for the Secretary of Education, all federal educational research being conducted by other departments and agencies of the Federal Government, and by state and local education agencies, colleges and universities and private R&D organizations.

f. Establish a policy management system for identifying Labs' and Centers' missions and priorities, and for better orchestrating its relationships with them.

g. Conduct at least a tri-annual evaluation with peer participation and on-site reviews of Labs and Centers and their impact on clients.

h. Appoint a permanent national advisory committee on Lab and Center policy.

i. Conduct a recompetition for each Lab and Center every fifth year.

j. Develop a national collaborative network to share information among Labs and Centers and other public and private educational foundations and R&D organizations.

k. Establish a comprehensive strategy and institutional policy for national R&D dissemination, and continue to operate the national ERIC system and National Diffusion Network (NDN).

l. Disseminate educational R&D findings to professional educational associations for their distribution to membership.

m. Design and enforce uniform policy for distribution of copyrighted R&D products of Labs and Centers.

n. Conduct a field-initiated, unsolicited proposal program.

o. Conduct competition for targeted grant research.

p. Support an annual senior research fellowship program for top Lab and Center research staff and research directors in Washington, D.C.

q. Appoint an associate director with line authority to manage policy for Regional Laboratories and coordinate policy for Centers.

r. Strengthen the role of the institutional monitors by assigning highly experienced, qualified officials with full-time responsibility for individual Labs and Centers and providing necessary travel funds for quarterly on-site consultation.

Recommendation #4: That the following 12 national R&D Centers be established in the 1984-85 recompetition.

a. Center on Post-Secondary Education

b. Center on Vocation and Career Education

c. Center for Teaching, Learning and Development

d. Center for Leadership, Management and School Effectiveness

e. Center on English Literacy

f. Center on Mathematics

g. Center on Science

h. Center on Educational and Computer Technology

i. Center on Social Studies

j. Center on Foreign Languages and Humanities

k. Center for the Fine and Performing Arts

l. Center for Physical Fitness and Health

Each Center is expected to address the following: philosophies and values underlying its R&D process; application of its respective subject matter focus to the needs of disadvantaged and gifted students; application of its research findings to public, private, rural and urban schools; ways in which home and community resources could strengthen the educational process; adaptation of materials for preschoolers through adults (except the Post-Secondary Education Center); and identification of the most effective methods for assessing, testing and evaluating its subject matter.

For NIE's National R&D Centers

Recommendation #5: That the mission of NIE's National R&D Centers be to participate in the R&D cycle in the following ways:

a. Conduct assessments of basic knowledge available and synthesize it for their respective content area.

b. Conduct long-range applied, interdisciplinary educational research on areas of Center focus.

c. Continue to develop educational models, e.g. learning, curriculum, teaching; and field test their utility for practitioners.

d. Design dissemination plans, conduct dissemination activities, primarily with Regional Labs, and also continue disseminating to the education R&D community through publications and professional conferences and to university schools of education.

e. Be evaluated by NIE on the quality of their research, their reputation as a nationally recognized leader in their respective research focus and on their effectiveness in disseminating their R&D to Regional Labs and professional associations.

f. Coordinating with other federal research programs of the U.S. Department of Education (e.g. Fund for the Improvement of Post-Secondary Education, the Bilingual Education Multifunctional Support Service Centers), and such agencies as the National Science Foundation, the Department of Agriculture, the National Endowment for the Humanities, the National Institute of Mental Health, and the Defense Department (including the Office of Naval Research and the Army Research Institute).

g. Coordinating with scholars from universities and private research organizations in their specializations both in the U.S. and internationally.

Recommendation #6: That Centers appoint a strong policy governance board of 20 nationally recognized individuals including one Regional Lab director; one other National Center director; the NIE Center Institutional Monitor (ex officio); four national regional research experts; four officials from private R&D organizations, four representatives of State Departments of Education; private school representatives; representation from the American Educational Research Association; and national representatives from business and the mass media. The chairman of the board would represent the board in official approval of NIE Center contract together with executive director. Members to be appointed for staggered three-year rotating terms; and to select executive director in collaboration with appropriate university officials.

For NIE's Regional Educational Laboratories

Recommendation #7: That the mission of NIE's Regional Labs be to assist educational practitioners by:

a. Conducting or coordinating regional needs assessment studies of state educational agencies, intermediate service agencies, and local education agencies.

b. Conducting applied research on special regional educational problems within broad NIE guidelines and priorities.

c. Developing national research Center products into models for use for demonstration and field testing within local schools in their respective regions.

d. Disseminating educational R&D products from NIE's national educational Centers, other Regional Labs, other model programs developed by local school districts; and acting as a clearinghouse for local educational practitioners and state and intermediate educational service unit officials.

e. Providing limited and better targeted technical assistance and demonstration to local school district officials who have adopted R&D programs for use in local schools.

f. Conducting or cooperating with intermediate level educational agencies evaluation studies on the impact of R&D programs utilized by local schools.

Recommendation #8: That Regional Labs appoint a policy governance board of no more than 20 regionally recognized individuals. They should include at least one other Regional Lab director; one National Center director; the NIE laboratory monitor (ex officio); state school officers from the respective region; the Secretary's Regional Representative (ex officio); county superintendents, local superintendents representing rural, urban, and suburban school districts; representatives of regional educational associations; mass media representatives; and private school representatives.

For NIE's Regional Educational Laboratories and R&D Centers

Recommendation #9: That both Regional Labs and R&D Centers improve their capability by:

a. Sub-contracting at least 30% of their annual budgets to other researchers in public and private universities and R&D organizations.

b. Establishing a Performance Management System for all staff to include defining organizational mission, establishing long range goals, identifying short range objectives, designing management action plans and evaluating outcomes.

c. Supporting annual NIE Lab and Center fellowships for scholars, research project managers and regional research personnel to assist them in developing skills in research, development, dissemination, utilization and evaluation.

d. Coordinating with NIE, other National Centers and Regional Labs through such methods as electronic mail, weekly or monthly newsletters, and quarterly seminars with other directors and NIE officials.

e. Recruiting regional R&D personnel to translate educational concepts into language easily understood by educational practitioners and policy-makers.

f. Holding quarterly conferences with regional and national teacher associations within subject matter specialties.

g. Developing a systematic program for publicity coverage of R&D activities.

h. Placing high priority in identifying and submitting all past and future research products to ERIC that accurately identify Lab or Center R&D output.

CREATING AND DISSEMINATING KNOWLEDGE FOR EDUCATIONAL REFORM: POLICY MANAGEMENT OF THE NATIONAL INSTITUTE OF EDUCATION'S REGIONAL EDUCATIONAL LABORATORIES AND NATIONAL RESEARCH AND DEVELOPMENT CENTERS

A Report to the

National Council on Educational Research

February 1984

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I. INTRODUCTION

In 1983 at least 15 major education studies concluded that America is now "A Nation At Risk." Parents, educators, businessmen, political leaders and the general public all agree that educational reform is now a national priority. When Americans define an issue as a major national challenge -- exploring space, solving the energy crisis, improving public health, strengthening our national defenses -- they expect the Federal Government to help solve the problem by bringing together national, state and local public and private resources. Under such circumstances the Federal Government has provided major funding for research and development activities, creating the knowledge that policy-makers need to understand and face national crises.

Although public education is rightly recognized as the responsibility of state and local governments, the Federal Government has a unique role in funding educational research and development activities. A significant part of that role over the past two decades has been played by the U.S. Department of Education through its National Institute of Education's Regional Educational Laboratories (Labs) and Research and Development Centers (Centers). This funding experience, however, has failed to satisfy many Congressional supporters, research and development professionals, and education practitioners.

Why hasn't federally supported educational research had a more positive impact on improving the practices of education in America? To answer this question, we formulated two hypotheses to guide this study:

1. NIE's Labs and Centers have conducted long range educational research in those content areas which could benefit American education most directly;
2. NIE's Lab and Center research has not been effectively delivered and shared with local school teachers, administrators, policy-makers and parents.

The purpose of policy research studies in general is to integrate differing interest group perspectives into a single "best policy management strategy" for the decision-maker who must take action and will be held accountable for the consequences.* The purpose of our study, then, is twofold: (1) to provide information and recommendations by which the National Council on Educational Research can carry out its Congressionally mandated responsibility to establish general policies for and review the conduct of NIE; and (2) to assist the National Institute of Education in meeting its policy management challenge to ensure that federal educational R&D resources will be available to state and local educators to help reform public and private schools. Our study focuses on three critical policy research questions:

1. What research and development have NIE's Labs and Centers carried out and at what cost?

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*Policy research seeks to synthesize data from a wide variety of documentary and interview sources using both qualitative and quantitative techniques. By contrast, needs assessment, experimental, case studies, comparative, historical/documentary, survey, legal analysis, descriptive or public issue research are research methods that generally are tied to a single indepth data base, from which more limited conclusions may be drawn.

2. What has been the perceived impact of this research and development on improving the practices of education?
3. What should be the research priorities of NIE's Labs and Centers and what strategies should they utilize to more effectively disseminate and encourage use of their findings?

Data for this policy study was collected from two main sources: (1) documents from the National Institute of Education and the Labs and Centers, public hearings and meetings, and professional reports, books and journal articles; and (2) interviews with representatives of educational interest groups, public and private research specialists and scholars, National Institute of Education officials, Lab and Center directors, and local school district superintendents.

Study recommendations are based on the data from the following eight studies (for more details about each of these see Appendix A):

1. An analysis of over 6,900 research reports and articles published in the ERIC system by 17 Labs and Centers from 1965 to 1983;
2. A 1983 national experience survey of 72 educational statesmen, educational research and development specialists, former Directors of the National Institute of Education, Lab and Center directors, executive directors of national educational associations, and Congressional staff members (for a list of those interviewed see Appendix B);
3. A content analysis of the summary of the National Institute of Education's National Lab and Center regional meetings held during the summer of 1983;

4. A content analysis of educational articles from nine public policy, educational association and educational research journals from 1962 through 1983;
5. A comparative analysis of eight of the most critical research-based national educational reform studies reported in 1983;
6. A state survey of 93 county and local district superintendents conducted in California during 1983;
7. A reanalysis of two U.S. Department of Education's Service Delivery Assessment studies of NIE's Labs (1982) and Centers (1983); and
8. A review of the October 1983 reports and recommendations from the five NIE National Lab and Center study groups preparing for recompetition.

In addition to the two hypotheses, three policy research questions and eight studies described above, 15 research questions guided the overall project strategy (see Appendix C).

II. REFORMING AMERICAN EDUCATION

The "rising tide of mediocrity that threatens our very future as a nation and a people," did not suddenly appear. According to the National Commission on Excellence in April 1983, it is the culmination of two decades of steady decline in student achievement. This decline in the 1960's and 1970's reflecting an upheaval in institutions of American society and accompanied by a national commitment to equal educational opportunity, was well known to public educators who lived daily with the challenge. Gradually the consequences of declining student achievement began affecting other institutions. Colleges and universities had to increase the number of their remedial programs. Public and private employers were concerned with the cost of manpower development and declining productivity; the military establishment was faced with a shortage of skilled manpower to operate its sophisticated weapons systems. The public welfare system and the law enforcement and prison system also became overloaded. Thus, over the past two decades, what began as an educational problem has gradually engulfed other institutions and has become a serious social issue.

The bipartisan National Commission on Excellence report on the condition of American education was followed immediately by a number of other reports prepared by distinguished panels representing major institutions of society. Their widespread agreement about the urgent need for reforming our schools triggered an avalanche of mass media attention unlike anything education has experienced in recent history. Americans are now confronted with a social problem that has become a

dramatic policy and economic issue which can no longer be ignored by Federal Government officials and partisan political leaders.*

If healthy debate is to continue on this issue, specific policy alternatives must be defined and a variety of reform steps taken. It is essential that these national studies, representing a dramatic "needs assessment" or "status report" on the condition of American education, be examined in greater detail to determine consensus on our educational crises as well as on specific problem areas and recommendations for educational reform.

The eight studies, reports and books selected for our analysis included: (1) A Nation At Risk: The Imperative for Educational Reform, by the National Commission on Excellence in Education, the U.S. Department of Education; (2) Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools, by the Task Force on Education for Economic Growth, Education Commission of the States; (3) Academic Preparation for College: What Students Need To Know And Be Able To Do, by the Educational EQuality Project, The College Board; (4) Making the Grade, by the Task Force on Federal Elementary and Secondary Education Policy, Twentieth Century Fund; (5) The Paideia Proposal: An Educational Manifesto, by The Paideia Group, Mortimer J. Adler; (6) Educating Americans for the Twenty-first Century: A Plan of Action for Improving Mathematics, Science, and Technology Education for All American Elementary and

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*The energy and attention necessary to sustain public debate and action to carry out recommended reform strategies will gradually dissipate unless educational reform becomes a top domestic partisan political issue during the 1984 Presidential Campaign.

Secondary Students So That Their Achievement is the Best in the World by 1995, by the National Science Board Commission on Precollege Education in Mathematics, Science and Technology, National Science Foundation; (7) High School: A Report on Secondary Education in America, by the Carnegie Foundation for the Advancement of Teaching, Ernest L. Boyer; and (8) A Place Called School: Prospects for the Future, Institute for Development of Educational Activities Inc., John I. Goodlad.

Each of these reports is described briefly in Appendix D. Based on content analysis of each of them, consensus on their major educational problems and recommendations for reform was obtained and listed below under seven categories:*

1. High School Students

   - SAT and ACT achievement score decline over past 20 years
   - National Assessment of Educational Progress reports a decline in scores on:
     - Mathematics
     - Writing
     - Science
     - Reading
     - Political knowledge and attitudes
   - Decline in scores on Iowa Tests of Educational Development
   - American high school student achievement scores below those of other industrialized nations

*Some reports did not identify educational problems for which they made recommendations. In addition, some recommendations from these reports did not come from a research data base. Although a useful basis for a continuing dialogue, these problems and recommendations should be carefully examined. Where necessary, additional data should be gathered to support or challenge their findings.

- Fewer high school students taking math and science courses
- Continuing decline in percentage of students graduating from high school
- Number of hours per day and number of total days in school significantly less than in other industrialized nations
- Obsolete classroom equipment and limited use of advanced instructional technology
- Lack of development of "higher order" reasoning and creative skills
- Increase in percentage of high school dropouts

2. College Students

- Inadequate preparation by graduating high school students resulting in increased number of college dropouts
- Increase in number of college remedial mathematics and English courses
- Decline in tested achievement of college graduates

3. Adults

- 10% of American adults are functionally illiterate

4. Teachers

- Inadequate career opportunities
- Low salary levels
- Low teacher competency levels
- Lack of reward for exceptional teaching performance
- Limited inservice training opportunities
- Failure to attract top college graduates to the profession

5. School Principals

- Inadequate preparation and leadership development

6. Employers

- Inadequate student preparation for employment

- Additional cost of remedial education programs for businesses and the military
- Lack of effective partnership between schools and businesses
- National rate of manufacturing productivity lowest among leading industrialized nations

7. The General Public

- Increased percentage of students attending private schools
- Reduced voter support for increase in school financing
- Decline in percentage of gross national product invested in education
- Declining levels of funding per pupil resulting in higher teacher/pupil ratios
- Decline in public opinion ratings of school effectiveness

After identifying the major educational problems described in these national studies, we analyzed their recommendations for educational reform.* The left hand column of Table I identifies 21 priorities (see Appendix E for full listing of educational content categories and Appendix F for the steps in designing these) about which recommendations were made in at least four of the eight studies. When two priorities were noted by the same number of studies (e.g. 7), the priority which raters judged as being given greater emphasis by the studies was rated higher and listed earlier in the Table. The Commission on Excellence recommended reforms in 19 of the 21 areas; The Paideia Group and John

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*For three other 1983 comparative analyses of the national reform studies see "The Almanac of National Reports," (August 1983, National Association of Secondary School Principals); Harold Howe II, "Education Moves to Center Stage: An Overview of Recent Studies," Kappan (November 1983); and Education Understudy, (Northeast Regional Exchange, Inc.).

TABLE I

RANK ORDER OF RECOMMENDATION AREAS
FOR SCHOOL REFORM BY EIGHT NATIONAL STUDIES*

Reform Recommendation Areas	National Commission on Educational Excellence	Action for Excellence	Academic Preparation for College	Making the Grade	The Paideia Proposal	Educating Americans for the 20th Century	The High School	A Place Called School	Totals
Teacher Preparation	X	X		X	X	X	X	X	7
Mathematics	X		X	X	X	X	X	X	7
Science	X		X	X	X	X	X	X	7
Instruction and Teaching Process	X	X			X	X	X	X	6
Classroom Management	X	X			X	X	X	X	6
Foreign Languages/Second Languages	X		X	X	X		X	X	6
Computer Science	X		X			X	X	X	5
Federal Educational Role	X			X		X	X	X	5
English	X		X		X		X	X	5
School Leadership & Management	X	X			X	X	X		5
Homework	X	X	X		X	X			5

TABLE I (Cont'd)

Reform Recommendation Areas	National Commission on Educational Excellence	Action for Excellence	Academic Preparation for College	Making the Grade	The Paideia Proposal	Educating Americans for the 20th Century	The High School	A Place Called School	Totals
Social Studies	X		X		X		X	X	5
Language Acquisition			X	X	X		X	X	5
Educational Change and Reform	X	X				X		X	4
Federal Educational Research	X			X		X		X	4
Discipline, Attendance, Dropouts	X	X			X			X	4
Vocational and Career Education	X				X		X	X	4
Cognitive Abilities	X		X		X			X	4
Advisory Committees		X			X	X	X		4
Art	X		X		X			X	4
Teacher Salaries	X				X	X	X		4
TOTALS	19	8	10	7	17	13	15	17	106

*Where two priorities were identified in the same number of studies a higher ranking was given to that priority which was given most attention by the sponsoring group.

Goodlad each recommended reforms in 17 of the 21 priority areas. About half of the suggested reforms were such curriculum recommendations as increasing emphasis on mathematics, science, foreign languages, computer science, English, social studies, language acquisition, vocational and career education, art, and cognitive abilities. Five priorities were for improving teaching such as better teacher preparation the top priority, and paying additional attention to instruction, classroom management, homework and teacher salaries. Four priorities were better local school management such as improvements in school leadership; educational change and reform; discipline, attendance and dropouts; and advisory committees. Additional recommendations dealt with the federal education role and federal educational research. Educational finance, equal educational opportunity, community and state governance issues, higher education and community colleges are conspicuously absent as educationally ranked priorities in these reports.*

In our National Experience Survey (see Appendix A, Item 2) perceptions by participants on rank order priorities of the national reform study recommendations were (1) raising graduation requirements in English, science and math; (2) improving teacher preparation and development; (3) improving classroom management; (4) strengthening instruction and teaching, (5) raising teacher salaries. Priority recommendations for reform from our reanalysis of NIE's Lab and Center Regional Meetings in 1983 (see Appendix A, Item 3) were: (1) student values; (2) mathematics; (3) teacher preparation; (4) school leadership and management; and (5) equal education. Our reanalysis of two U.S. Department of Education's Service Delivery Assessment Studies (see Appendix A, Item 7) identified

*These studies were all primarily focused on high schools, with little direct attention to elementary schools or colleges and universities.

the following reform priorities: (1) instruction; (2) teacher preparation; (3) language acquisition; (4) achievement testing; and (5) assessment.

In summary, based on a review of eight major national reform studies, the perceptions of participants from our National Experience Survey, NIE's 1983 national hearings, and two Department of Education's Service Delivery Assessments there is a consensus about a number of educational reform areas. Improved teacher preparation is probably the most important, followed closely by a need to strengthen curriculum in mathematics, science and English. More effective instruction, classroom management and school leadership are frequently mentioned along with a continuing concern for a definition of the federal role in education.

III. THE FEDERAL ROLE IN CREATING KNOWLEDGE FOR EDUCATIONAL REFORM

Section II described the problems of American education today and recommendations for reform as seen from the perspective of eight national reform studies. This section deals with the role of the Federal Government in the process of educational reform.

Four central questions are the focus of this section:

1. What are the major leverage points in a local school where these recommendations for reform can be implemented?
2. What are primary resources required to bring about educational reform?
3. Who have the major roles and responsibilities in the American educational system for carrying out these tasks?
4. What is the Federal Government's role in educational reform?

Four major "leverage points" for change and reform have been identified by the national studies -- (1) goals, (2) organizational structure, (3) instructional technology and curriculum, and (4) personnel. Examples of recommendations from these studies categorized under each area are as follows:

1. Goals:
    - Raising graduation and college entrance requirements
    - Upgrading teacher certification requirements
    - Setting higher standards of student conduct and performance
2. Organizational Structure:
    - Designing teacher career ladders including master teachers

- Improving basic teacher salaries and providing incentive pay
- Lengthening school hours and days
- Reducing electives and increasing academic core subjects
- Reducing teacher-student ratios

3. Instructional Technology and Curriculum:
   - Improving math and science curriculum
   - Introducing computer technology
   - Managing more effective classroom learning and homework
   - Upgrading laboratory equipment

4. Personnel:
   - Improving teacher preparation, training and evaluation
   - Training principals and administrators
   - Preparing teachers to work with special education and disadvantaged students
   - Organizing parent advisory committees

To carry out these recommendations, three primary resources are required -- students, finances, and the knowledge created through research and development. Students represent raw material who are taught additional values and skills by the schools, early in our nation's history only the children of the wealthy were expected to be educated. Today, as a result of national commitment to equity that has evolved over the past 30 years, every child regardless of race, color, creed, sex or handicap is expected to have the opportunity to obtain a high quality education. But breakdowns of family, church and neighborhood structures have weakened the support system for most entering students.

Additional funding for educational reform in a decade of scarce resources will be difficult to obtain at any level of government.

American education today at the local, state and federal level is the nation's larget public enterprise, at a cost of $230 billion annually. It involves one in three Americans as students, teachers, administrators or suppliers of educational materials. An important part of the current national debate centers, therefore, on who will provide the funding for effective strategies of reform.

The third required resource is knowledge created through research and development (R&D). Education by definition is essentially a knowledge industry, and creating and sharing knowledge is the central activity of educators. While other institutions in our society use knowledge for profit (business), justice (the criminal justice system), space exploration (NASA), or physical health (health care industry), only the institution of education has as its central mission the creation and sharing of knowledge. Only in education is the discovery, creation and sharing of new knowledge the initial motivation of its professional workers -- teachers, professors, researchers and administrators.

For a number of reasons educational R&D cannot be expected to solve all problems related to school reform: (1) the amount of money spent for R&D is relatively small compared with the large number of schools and students; (2) there is a comparatively wide time span between the creation of new knowledge and its use; (3) R&D may not be effectively targeted by researchers to the needs of practitioners;* (4) R&D may not be effectively disseminated; and (5) R&D which has been replicated and validated may not be sought, accepted or utilized by practitioners.

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*Some have argued that the reason R&D has little impact on educational practice is because researchers too often conduct studies of personal interest only, thereby resulting in a large pool of scientific data unrelated to problems of practitioners.

When a host of national reform studies point to the decline of student achievement in learning new knowledge in the schools, they are in fact concluding that this knowledge industry we call education is failing. Part of this failure may be related to the difficulties in producing this knowledge and disseminating it to its clients -- students, teachers, administrators and policy-makers.

Major roles and responsibilities for providing primary resources to the schools are shared -- students prepared and motivated to learn, financial resources for the ongoing costs of education and the creation of knowledge (R&D). Parents generally are responsible for preparing, supporting and motivating students in the learning process called schooling. State governments, local school boards, taxpayers and parents have the primary responsibility for funding the operations of local schools. The Federal Government, meanwhile, has accepted the responsibility for providing block grant and categorical funding for federally mandated programs. These are designed to assist disadvantaged student populations, and to guarantee individual loans to college and graduate students as an investment in their future as productive, taxpaying, contributing citizens. Universities, private R&D organizations, some state departments of education and urban school districts, and especially the Federal Government are those responsible for producing educational R&D and for its dissemination (funding at the local level for R&D activities with long-range payoff will always be meager because of the competing claims for short range educational results).

The Federal Government's role in educational R&D and its contribution to educational reform has been defined by the Congress in Section

405 (a) and (b) of the General Education Provisions Act, 20 U.S. Code 1221e, (PL 92-318; as amended by PL 93-380 and PL 94-482):

> "(a) (1) The Congress hereby declares it to be the policy of the United States to provide to every person an equal opportunity to receive an education of high quality regardless of his race, color, religion, sex, national origin, or social class. Although the American educational system has pursued this objective, it has not yet attained that objective. Inequalities of opportunity to receive high quality education remain pronounced. To achieve quality will require far more dependable knowledge about the processes of learning and education than now exists or can be expected from present research and experimentation in this field. While the direction of the education system remains primarily the responsibility of State and local governments, the Federal Government has a clear responsibility to provide leadership in the conduct and support of scientific inquiry into the educational process.
>
> "(2) The Congress further declares it to be the policy of the United States to --
>
> "(i) help to solve or to alleviate the problems of, and promote the reform and renewal of American education;
>
> "(ii) advance the practice of education, as an art, science and profession;
>
> "(iii) strengthen the scientific and technological foundation of education; and
>
> "(iv) build an effective educational research and development system.
>
> "(b) (1) In order to carry out the policy set forth in sub-section (a) there is established the National Institute of Education..."
>
> "(2) The Institute shall...seek to improve education in the United States through concentrating the resources of the Institute on the following priority research and development needs --
>
> "(A) improvement in student achievement in the basic educational skills, including reading and mathematics;

"(B) overcoming problems of finance, productivity, and management in educational institutions;

"(C) improving the ability of schools to meet their responsibilities to provide equal educational opportunities for students of limited English-speaking ability, women, and students who are socially, economically, or educationally disadvantaged;

"(D) preparation of youths and adults for entering and progressing in careers;

"(E) overcoming the special problems of the nontraditional student, including the older student (with special consideration for students over age 45) and the part-time student, and the instituion which the student attends;

"(F) encouraging the study of languages and cultures and addressing both national and international education concerns; and

"(G) improved dissemination of the results of, and knowledge gained from, educational research and development, including assistance to educational agencies and institutions in the application of such results and knowledge.

"In carrying out this paragraph, the Institute shall give attention to the needs of early adolescents and the schools which serve them."

In our National Experience Survey we asked 72 educational statesmen if they agreed with the research role of the Federal Government described by the National Commission on Educational Excellence -- "Collecting data, statistics and information about education generally; supporting curriculum improvement and research on teaching, learning and the management of schools; and supporting teacher training in areas of critical shortage or key national needs." Eighty-four percent agreed with that statement; in addition, 82 percent felt that the Federal Government should be the most important source of funding for educational R&D. The Department of Education's Service Delivery Assessment (see Appendix A, Item 7) found

that Lab and Center clients, almost without exception, plead for a strong federal role in educational R&D. They also called for federal leadership as the major funder and in identifying national R&D needs and providing coordination.

Because of its unique perspective and its responsibility for the national interest, the Federal Government is in a position to fund, create and disseminate educational R&D. Once this new knowledge has been created and disseminated, it becomes the responsibility of local officials -- school boards, administrators, teachers and parents -- who must decide if and how this knowledge can best be used to reform their public or private schools and colleges. This position has been well summarized by the Congress in the U.S. Department of Education's Organization Act which says:

> "Support for research and improvement activities are the mechanisms through which the Federal Government can least intrusively and most productively increase the capacities of state and local and private educational agencies, other levels of governments, private organizations, and individuals to improve the quality of American education."

IV. FEDERAL EDUCATION R&D: NIE'S LABS AND CENTERS

This section of the report contains three "historical" perspectives on NIE's Labs and Centers. Section A is a thumbnail sketch of events leading up to the creation of the Labs and Centers and highlights of activities, reports, policies, and Congressional legislation since then. Section B provides data on major policy viewpoints from a number of relevant journals. This helps describe the educational environment in which the federal educational R&D system developed. Section C summarizes the reports and articles published by the Labs and Centers to determine the educational content areas on which they have focused.

A. An Outline History of NIE's Labs and Centers

This outline defines four main periods -- (1) project-by-project educational R&D period prior to 1963; (2) institution based period under the U.S. Office of Education from 1963-71; (3) program purchase policy period under NIE from 1972-78; and (4) institutional support under NIE and the newly formed U.S. Department of Education from 1979-83.

1. Project By Project Period Prior to R&D Labs and Centers

- American Educational Research Association (AERA) organized over 60 years ago by individual R&D scholars and researchers; by 1978 AERA had increased in size to 14,000 members with over 100 institutional affiliations
- Congress passed the Cooperative Educational Research Act in 1954
- Congress passed the National Defense Educational Act in 1958 which provided individual research scholarship support
- Bureau of Educational Research and later the National Center on Research and Development in the U.S. Office of Education funded individual proposal submissions recommended by reviewing panels during 1950's and early 1960's. This approach resulted in fragmented and non-accumulative individual

research projects, a continuing gap between research and practices; and a lack of critical mass of behavioral and other scientists working on educational research problems

- Foundations such as Ford, Carnegie, Rockefeller and Danforth substantially increased their commitment to educational research during the 1960's

2. Institution Based Research Period under the U.S. Office of Education (1963-71)

   - First National Research Center competition and funding under the Cooperative Research Act in 1963-64
   - First Regional Labs authorized under the Elementary and Secondary Education Act in 1965-66
   - Twenty Regional Labs and 14 Centers organized during mid 1960's and funded under institutional grant or contract by USOE
   - Council on Education Development and Research (CEDaR) established in 1970
   - President's Science Advisory Committee, Office of the Secretary of Health, Education and Welfare, Bureau of the Budget, and Congress raised early questions on effectiveness of Labs and Centers
   - Funds for Lab and Center support cut back since USOE budget failed to rise as anticipated
   - Nine Regional Labs and three National Centers closed by the late 1960's
   - Chase report on 20 Regional Labs and nine Research Centers prepared for HEW in 1968

3. Program Purchase Policy Period under the National Institute of Education (1972-78)

   - National Institute of Education and the National Council on Educational Research organized in 1972 with eight Labs and nine Centers
   - Program purchase policy implemented to enable NIE to fund specific programs at Labs and Centers through competitive bidding
   - General Accounting Office reported in 1973 that Lab and Center curriculum and product development needed strengthening

- Conflicts among Congress and NIE resulted in NIE budget reduction to $75.7 million in 1974 and to $70 million in 1975

- CEDaR moved to Washington, D.C. and vigorously lobbied Congress and NIE on behalf of institutional support for Labs and Centers

- National Council on Educational Research commissions Campbell study on ways to improve effectiveness of NIE's Labs and Centers. This study found that program purchase policy led to funding short-term unrelated projects and overlap of Labs and Centers' missions

- In response to continuing conflicts between NIE and the Labs and Centers, Congress mandated the appointment of the National Panel for the Review of Laboratory and Center Operations in 1976

- NIE established five organizational program units -- basic skills, education and work, educational equity, science and management, and dissemination of research results

4. Institutional Support Period under NIE and the U.S. Department of Education (1979-83)

   - Report of Congressional panel on the review of Lab and Center operations in 1979 recommended institutional support and clarification of their respective missions

   - NIE's administrative policy on Long-Term Special Institutional Agreements with the Seventeen Existing Laboratories and Centers agreed to five-year commitments and three-year contracts

   - NIE reorganized into three units -- teaching and learning; policy and organization (including finance and management); and dissemination and improvement of practice. Three planning themes established -- improving literacy, increasing equity, and discovering what makes a good school

   - A Laboratory and Center Coordinator established in NIE's Office of the Director, and each Center assigned an Institutional monitor (IM)

   - Legislation passed by Congress establishing new U.S. Department of Education, effective May 1980, to include the National Institute of Education and its Labs and Centers

   - Congressional mandate for recompetition of Labs and Centers is included in the Omnibus Budget Reconciliation Act of 1981

   - Conflict between NIE Directors and Secretary of Education results in turnover of NIE leadership

- Nine Centers and seven Labs exist
- Publication of Secretary of Education's National Commission on Excellence report and other national studies on the state of American education
- NIE conducted nationwide meetings on competition for Regional Educational Laboratories and Research and Development Centers
- NIE convened study groups and a national panel on Lab and Center recompetition
- National Council on Educational Research commissioned a study of NIE's Labs and Centers (1983)
- Congressional mandate for 1984 recompetition of Labs and Centers is delayed

B. Major Educational Policy Viewpoints: 1962-1982

While the educational R&D system evolved during the past two decades, interest groups were identifying their own educational policy issues and priorities. Many of their views are reflected in published journals of opinion. By collecting articles in these journals dealing with educational issues, we were able to analyze similarities and differences in priorities.

The publications of four major interest groups were selected -- the conservatives, liberals, the federal educational establishment and the educational research and development community. Three thousand one hundred sixty-seven articles from nine publications abstracted in the Educational Resources Information Center (ERIC) were identified. Abstracts of articles on education written during the decades 1962-1972 and 1973-1983 were classified according to major topic areas (see Appendix E) by journals, and ranked by frequency, and then prioritized. No judgments were made as to the quality of the articles abstracted, but only on the educational subject matter discussed by the author.

The conservative viewpoint was represented by three widely read

publications: National Review, an acknowledged voice of conservatism published by William Buckley, Jr.; Public Interest, a neo-conservative policy journal of opinion; and Independent School, a journal with a private education perspective. Table II, Column A shows a rank ordering of the top ten priorities most frequently written about by conservative writers.

During the last 20 years, conservative education writers wrote most frequently about higher education (excluding community colleges) and published some 60 different articles covering such areas as changing faculty and student values, liberal teaching influences on students and declining academic standards. Their second priority was school environment -- importance of the family, value of home-based schools, and concern about reading assignments that describe immoral conduct. Their third priority was the reduction of the federal role in education. The fourth was school desegregation against forced busing and integration. The remaining five priorities were the lack of teacher preparation, English, instruction and teaching process, vocational and career education, and concern for basic student values.

Three policy journals expressing liberal viewpoints were selected for this study: The New Republic and Nation, two widely recognized liberal journals; and Today's Education, published by the National Educational Association. Table II, Column B shows the rank-order listing of the top 20 priorities most frequently discussed by education writers in these liberal journals.

Liberal education writers published articles consistent with the liberal agenda on educational equity of the past 20 years. As did conservative writers, most articles dealt with higher education. Liberal

TABLE II

ARTICLES FROM CONSERVATIVE, LIBERAL, DEPARTMENT OF EDUCATION AND R&D COMMUNITY JOURNALS CLASSIFIED BY FREQUENCY AND RANKED ACCORDING TO EDUCATIONAL CONTENT AREAS 1962-1982

"A" CONSERVATIVE JOURNALS (National Review, Public Interest, Independent School)				"B" LIBERAL JOURNALS (New Republic, Nation, Today's Education)				"C" DEPARTMENT OF EDUCATION JOURNAL (American Education)				"D" R&D JOURNALS (American Educational Research Journal, Phi Delta Kappan)			
Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*
1	Higher Education	60	13	1	Higher Education	86	13	1	Vocational and Career Education	33	9	1	Instruction and Teaching Process	112	7
2	Educational Environment	33**	7	2	Desegregation	53	8	2	Science	24	6	2	Educational Change and Reform	97	6
3	Federal Educational Role	33	7	3	Equal Education	35	5	3	Higher Education	23	6	3	Higher Education	95	6
4	Desegregation	24	5	4	Federal Educational Role	34	5	4	Federal Educational Role	23	6	4	Teacher Preparation	94	6
5	International Education	23	5	5	Discipline, Attendance, Dropouts	32	5	5	English	20	5	5	Achievement Testing	89	5
6	Teacher Preparation	22	5	6	Instruction and Teaching Process	31	5	6	Educational Environment	19	5	6	Federal Educational Role	69	4
7	English	16	4	7	International Education	29	4	7	Special Education	18	5	7	Educational Environment	66	4
8	Instruction and Teaching Process	14	3	8	Special Education	22	3	8	Instruction and Teaching Process	17	5	8	Cognitive Abilities	61	4

Table II (Cont'd)

"A" CONSERVATIVE JOURNALS (National Review, Public Interest, Independent School)				"B" LIBERAL JOURNALS (New Republic, Nation, Today's Education)				"C" DEPARTMENT OF EDUCATION JOURNAL (American Education)				"D" R&D JOURNALS (American Educational Research Journal, Phi Delta Kappan)			
Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*	Rank Order	Content Areas	# of Articles	%*
9	Vocational and Career Education	14	3	9	Educational Environment	19	3	9	Teacher Preparation	14	4	9	Student Values	60	4
10	Student Values	12	3	10	Civil Rights	16	2	10	Equal Education	14	4	10	Discipline, Attendance, Dropouts	60	4
Total # of Articles in Table II		251				357				205				803	
Total # of Articles Reviewed		454				664				381				1,668	

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*Figures in this column are percentages of all articles surveyed in journals representing this group, not a percentage of articles in this Table.

**When the number of articles for two content areas was the same, higher ranking was given to the content area in which the number of articles was increasing in the most recent decade.

journal writers, however, focused attention on student protest against the Viet Nam War. In the past ten years, articles on higher education by liberal writers have declined dramatically. The second most frequent issue was desegregation, which also declined sharply in the past ten years as an area of interest. Ranked third was equal education, including problems of discrimination, race relations, women's equity, compensatory education, and sex differences. The role of the Federal Government in education, the fourth-ranked priority, has been gradually increasing in interest. The subject of discipline, attendance and dropouts has increased from zero articles in the first decade to 27 articles in the past ten years, reflecting the influence of teachers writing in the NEA Journal. The next four most frequently discussed subjects were instruction and the teaching process, international education, special education, and educational environment, including the dangers of book censorship, and civil rights issues.

A third group of journal articles, those in American Education, a publication of the U.S. Department of Education (see Table II, Column C), tend to be written for professional educational practitioners throughout the nation. The rank ordering of educational subject areas most frequently published in American Education reflect its professional orientation over the past two decades. For each priority, there has been a dramatic increase in the number of articles on that topic during the past decade. In part this reflects increased participation by the Federal Government in vocational education (#1), higher education (#3), and special education (#7). In addition it gave priority to science (#2), the federal educational role (#4), English (#5), educational environment (#6), instruction (#8), teacher preparation (#9), and equal education (#10). In contrast to both conservative and liberal publications, desegregation

was less often a topic of commentary during the past decade in the journal American Education.

Table II, Column D shows the rank ordering by educational writers publishing in the Phi Delta Kappan, and the American Educational Research Journal, and the educational policy views of the research and development community. The Phi Delta Kappan journal continued to demonstrate its wide-ranging educational policy interest by publishing 42% of all the articles found in all nine journals abstracted for this study. It also published articles on 58 of the possible 61 educational subject areas into which journal articles were originally coded. Most frequently discussed were the topics of instruction and the teaching process, educational change and reform, higher education, teacher preparation, and achievement testing. Other most frequently mentioned priorities were the increased federal role in education, educational environment, cognitive abilities, student values and discipline, attendance, dropouts. Relatively few articles appeared in the basic curriculum areas of math, science, art, social sciences, foreign languages and English.

In comparing the number of educational articles published by journals representing liberal, conservative, Federal educational, and educational research communities, the four highest priority content areas mentioned by all interest groups were higher education, the federal educational role, instruction and teaching process and the educational environment. Teacher preparation was mentioned among the top ten priorities of three of the four interest groups.

According to our National Experience Survey respondents ranked equal education as the major educational policy issue in the United States since 1972; next was the federal role, teacher preparation, and educational finance.

C. Creating Knowledge: R&D by NIE's Labs and Centers, 1965-1983

Federal educational research and development is supported in a wide variety of departments and agencies outside of NIE and the U.S. Department of Education. Examples of other agencies conducting education related research include the Departments of Defense, Agriculture, Labor, Health and Human Services, and State; as well as the National Science Foundation. Within the U.S. Department of Education research grants and contracts for special populations are conducted through the offices of Vocational Education, Post Secondary, Special Education and Rehabilitative Services, Bilingual Education, and Elementary and Secondary Education. In addition, the Office of the Deputy Undersecretary for Policy and Budget's Policy Planning Centers and the Deputy Undersecretary for Management's Service Delivery Assessments also carry out educational R&D. The primary research office of the U.S. Department of Education, however, is officially organized under the Office of the Assistant Secretary for Educational Research and Improvement which includes the National Center on Educational Statistics and the National Institute of Education and its Labs and Centers.

This study focuses on R&D work of NIE's Labs and Centers from 1965 until 1972 when they were independent, from 1972 until 1979 while operating within NIE under the program purchase policy and from the 1980-83 under the institutional support policy of NIE and the U.S. Department of Education. In preparation for making recommendations for the national recompetition of Labs and Centers, in 1983 the National Council on Educational Research (NCER) undertook this review and analysis of the research

publications and reports produced by those 16* individual Labs and Centers still operating. By examining the educational R&D that has been published by the Labs and Centers during the past two decades we can have some idea of the inventory of educational knowledge now available to practitioners, policy-makers, and the R&D community.

This inventory can be compared with the educational priority needs expressed by the Congress (see Section III) and by educators and other major interest groups through their journal publications during the same two decades (see Section IV B). From this analysis we will be able to determine the expectations that had been identified by educational stakeholders and the general responsiveness of NIE's Labs and Centers to these expectations. Finally, by inventorying the R&D work of the Labs and Centers these past two decades we will be able to determine to some extent the relevance of their past contributions to the 1983 national needs assessment represented by the eight national reform studies summarized in Section II.

To develop the inventory of Lab and Center research, we searched all R&D publications and reports submitted to ERIC by 17 Labs and Centers since 1965. The resulting 6,918 abstracts were classified by 61 educational subject matter categories under five major areas including individual student development, curriculum and teaching, local school management, community and state responsibilities, and national resources**. No attempt was made to evaluate the quality of the research or to

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* Data was also gathered from the Central Midwest Regional Educational Laboratory (CEMREL) which is no longer in operation. At the beginning of this project there were 16 Labs and Centers functioning.

** See Appendix F for additional information on the design of the research matrix and the limitations of the ERIC data base for this analysis, and Appendix E for the list of 61 educational research categories. Also note that funding for these Lab and Center publications was from NIE, other federal agencies, as well as private sources and that funding of a single contract could result in any number of publications in ERIC.

determine its relative cost-effectiveness but only to categorize it by subject matter area. Two thousand six hundred ninety-eight of these publications were the work of Labs and 4,220 the work of Centers.

Table III shows the percentage of R&D publications of eight Labs and nine Centers classified by five general educational areas for the years 1965-83.

TABLE III

PERCENTAGE OF 6,918 ARTICLES AND RESEARCH PUBLICATIONS CITED IN ERIC FROM 17 LABS AND CENTERS CODED INTO FIVE MAJOR EDUCATIONAL CONTENT AREAS (1965-1983)

Major Educational Content Areas	Labs	Centers
I. Student Development	8%	9%
II. Curriculum and Teaching	70%	75%
III. Local School Management	18%	11%
IV. Community and State Responsibilities	3%	4%
V. National Resources	1%	1%
	100%	100%

The greatest percentage of this R&D work by both the Labs and the Centers was in curriculum and teaching -- 70% for Labs and 75% for Centers. The next highest concentration was in local school management -- 18% for Labs and 11% for the Centers. R&D publications on student development were 8% and 9% respectively, while research on community and state responsibilities, including higher education and state governance, is 3% and 4%. Research publications on national issues in education such as civil rights and international education represented only 1% each of the total Lab and Center research output.

When the percentage of R&D publications of the 17 Labs and Centers is classified into the same five educational content areas but by time

period roughly corresponding to the historical divisions in Section IV A, a somewhat different picture appears. Table IV shows a similarity between the areas of publication by Labs and Centers in the 1965-72 period and in the 1973-79 period. This begins to change, however, in the 1980-83 period when Labs produced fewer publications than Centers in the Curriculum and Teaching area (57% vs. 75%) and more in the Local School Management area (29% vs. 15%). Relatively few publications occurred in any of the three time periods in the areas of Community and State Responsibilities and National Resources.

If the number of publications produced by Labs is compared with the number produced by Centers over the three time periods in Table IV it appears the Labs produced about 32% in 1965-72, but 43% and 42% respectively in 1973-79 and 1980-83.

TABLE IV

PERCENTAGE OF 6,918 ARTICLES AND RESEARCH PUBLICATIONS CITED IN ERIC FROM 17 LABS AND CENTERS CODED INTO FIVE MAJOR EDUCATIONAL CONTENT AREAS FOR THREE MAJOR TIME PERIODS 1965-72; 1973-79; and 1980-83

	1965-1972		1973-1979		1980-1983	
	Labs	Centers	Labs	Centers	Labs	Centers
I*.	12%	14%	10%	6%	9%	3%
II.	70%	67%	73%	80%	57%	75%
III.	15%	14%	15%	10%	29%	15%
IV.	2%	4%	1%	3%	4%	5%
V.	1%	1%	1%	1%	1%	2%
	(N=682)	(N=1463)	(N=1427)	(N=1928)	(N=589)	(N=829)

* See Table III for listing of these five educational content areas.

Table V shows rank ordering of 20 priorities of R&D work published by the Labs from 1965-1983. The highest ranked educational subject matter according to the number of article abstracts were concentrated in vocational and career education (#1), followed by mathematics (#2), English (#3), instruction and teaching process (#4), discipline, attendance, dropouts (#5), preschool (#6), teacher preparation (#7), classroom management (#8), equal education (#9), and effective schools (#10).

The second set of ten priority rankings for R&D work published by Labs during the 1965-1983 period are foreign languages/second languages (#11), adult education (#12), science (#13), cognitive abilities (#14), minorities, disadvantaged, women (#15), educational change and reform (#16), affective learning (#17), special education (#18), regional or state governance (#19), and social studies (#20).

Table VI shows rank ordering of 20 priorities of R&D work published by the Centers during the period 1965-1983. Once again, the greatest number dealt with vocational and career education, 37% of the total of the Center's R&D output.

In priority ranking the next highest were English (#2), instruction and the teaching process (#3), cognitive abilities (#4), mathematics (#5), achievement testing (#6), school and college administration (#7), assessment (#8), science (#9), and minority, disadvantaged and women (#10).

In the second set of ten, priority rankings for R&D work by Centers during the 1965-1983 period are teacher preparation (#11), higher education (#12), classroom management (#13), effective schools (#14), preschool (#15), foreign languages/second languages (#16), educational change and reform (#17), regional or state governance (#18), school leadership and management (#19), and educational environment (#20).

TABLE V

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS IN WHICH NIE'S LABS PUBLISHED IN ERIC FROM 1965-1983*

Rank Order	Educational Content Areas	Number of Articles	Percentage**
1	Vocational and Career Education	317	12%
2	Mathematics	275	10%
3	English	265	10%
4	Instruction and Teaching Process	200	7%
5	Discipline, Attendance, Dropouts	156	6%
6	Preschool	142	5%
7	Teacher Preparation	107	4%
8	Classroom Management	97	4%
9	Equal Education	92	3%
10	Effective Schools	90	3%
11	Foreign Languages/Second Languages	74	3%
12	Adult Education	70	3%
13	Science	66	3%
14	Cognitive Abilities	51	2%
15	Minorities, Disadvantaged, Women	50	2%
16	Educational Change and Reform	47	2%
17	Affective Learning	46	2%
18	Special Education	42	2%
19	Regional or State Governance	39	1%
20	Social Studies	37	1%

* For information on how the specific educational content areas on Table V, VI, etc., fit under the five major educational content areas of Table III, see Appendix E.

**Percentages in this column are of all articles and reports completed by Labs from 1965-1983, (2,698), not a percentage of articles in this Table.

TABLE VI

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS IN WHICH NIE'S CENTERS PUBLISHED IN ERIC FROM 1965-1983

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	Vocational and Career Education**	1,956	37%
2	English	257	5%
3	Instruction and Teaching Process	247	5%
4	Cognitive Abilities	226	4%
5	Mathematics	194	4%
6	Achievement Testing	173	3%
7	School and College Administration	141	3%
8	Assessment	80	2%
9	Science	67	1%
10	Minorities, Disadvantaged, Women	66	1%
11	Teacher Preparation	62	1%
12	Higher Education	55	1%
13	Classroom Management	49	1%
14	Effective Schools	49	1%
15	Preschool	48	1%
16	Foreign Languages/Second Languages	47	1%
17	Educational Change and Reform	44	1%
18	Regional or State Governance	43	1%
19	School Leadership and Management	43	1%
20	Educational Environment	29	1%

* Percentages in this column are of all articles and reports completed by Centers from 1965-1983, (4,220), not a percentage of articles in this Table.

**The National Center for Research on Vocational Education is responsible for the unusual number of publications here.

In comparing Lab and Center output by specific priorities dominating both lists is vocational and career education. Also ranked among the top five priorites on both lists are English, instruction and the teaching process, and mathematics.

Of the top 20 priority rankings on both lists 14 or 70% are common. Labs as a group included the additional priorities of discipline, attendance, dropouts; equal education; adult education; affective learning; special education and social studies. By contrast Centers as a group have six other unique priorities including achievement testing, school and college administration, assessment, higher education, school leadership and management and educational environment.

In order to provide the interested reader with further information on the priorities of R&D work published by the Labs and Centers, six additional data tables can be found in Appendix G (Tables 1 - 6). These appendix tables amplify tables V and VI with a breakdown of data by three time periods -- 1965-72, 1973-79 and 1980-83. In comparing the top ten areas of publications for the Labs over those three periods we found more similarities than differences with English, instruction and teaching process, mathematics, vocational and career education and achievement testing common to all. Publications on equal education were among the top ten priorities only in the 1980-83 time period.

A comparison of the Centers top ten priorities across the three time periods yielded seven common educational content areas including vocational education as number one, cognitive abilities, instruction and teaching process, mathematics, English, achievement testing, and school and college administration. Only in the 1980-83 period did foreign language, school law and teacher preparation appear among the top ten priorities for Centers.

By comparing the top ten priorities of Labs with those of Centers over these same time periods much similarity is found with vocational and career education, instruction, mathematics, English, achievement testing and cognitive ability appearing throughout. Science only appeared in the 1965-72 period and has not been in the top ten since then (though it appeared among the top 20 for both Labs and Centers in 1973-79 and for Labs only in 1980-83). Both foreign languages and teacher preparation were among the top ten in Labs in 1965-72 and both reappeared for Labs and Centers in 1980-83. Articles on minorities were published by Centers in 1965-72, by Labs in 1973-79 and publications on equal education occurred in the top ten list of Labs in 1980-83. Publications in the top ten on effective schools began in 1973-79 for Labs and Centers and continued for Labs in 1980-83.

In 1980 the Congress identified a number of its R&D content priorities for NIE including: (1) basic skills such as reading and math; (2) equal education with a concern for the disadvantaged; (3) career education; (4) languages and cultures; (5) finance, productivity and management of educational institutions; and (6) the nontraditional student including older and part-time students. The publications as summarized in Tables V and VI clearly indicate the extent to which Labs and Centers dealt with the concerns of Congress. Reading, as included in English, is ranked #3 for the Labs and #2 for the Centers while career education is ranked first by both. Mathematics is ranked #2 by the Labs and #5 by the Centers. Foreign languages is #11 for the Labs and #16 for the Centers, and equal education is #9 and #15 for the Labs and #10 for the Centers. The nontraditional student priority shows under adult education which is ranked #12 by the Labs. The Congressional

priority of management, productivity and finance shows as #8, #10, #16 and #19 for the Labs, and #7, #12, #13, #14, #17, #18 and #19 for the Centers. Congress also was concerned about the dissemination of R&D findings, and although this report raises questions about how much of the R&D has reached users, there can be no question that the Labs and Centers have been responsive to this mandate. (See Table VII in Section V.)

In closing this section it is recognized that Labs and Centers vary widely in their organizational missions, total budgets and percentage of their budgets funded by NIE (see Appendix H). While it does tend to obscure the special focus of individual institutions, grouping this research data by Labs and by Centers does demonstrate that Lab and Center R&D has generally focused on similar educational content areas, although their respective missions have been defined differently.

Comparing the R&D priorities of NIE's Labs and Centers with educational priorities expressed by special interest journals (Section IV B), the recommendations of the 1983 national reform studies (Section II) and the priorities of Congress (Section III), the data suggests two conclusions:

1. The R&D outputs of NIE's Labs and Centers have been focused on improving teacher preparation, the instructional process and school curriculum such as mathematics, English, science and foreign languages -- all consistent with the areas in which major recommendations were made by the 1983 national reform studies; consistent with the educational policy priority areas of conservatives (though not liberals), the federal educational establishment and the research and development community; and consistent with the desires of Congress.

This conclusion suggests support for the first major hypothesis guiding this study that "NIE's Labs and Centers have conducted long range educational research in those content areas which could benefit American education most directly."

2. The federal role in education continues to be a subject of great policy interest to the conservative, liberal, federal educational and the research and development communities as well as the 1983 national reform studies.

V. DISSEMINATING KNOWLEDGE: BARRIERS TO EFFECTIVE PERFORMANCE

From our findings about the content areas on which Lab and Center publications have focused, the approximate $560 million in Federal funds (see Appendix H) they've spent over the past 20 years have been for research in many of the same content areas addressed by educational interest groups in their policy journals (Section IV B). The Lab and Center research publications also cover many of the same content topics recommended for improvement by the 1983 national reform studies summarized in Section II. It appears, therefore, that during the coming decade, Labs and Centers with an effective Federal dissemination strategy could play a critical role in local educational reform. This strategy would require two components: (1) the integration and synthesis of already available knowledge discussed in Section IV; and (2) the successful translation and dissemination of that knowledge to state, intermediate, and local practitioners and policy-makers -- the subject of this section. There are at least two major structural barriers to the Federal Government's attempt to disseminate educational R&D: (A) the complexity of the educational institution itself, and (B) stages of educational research and development. This section will also report our findings on the stages of the R&D cycle in which the Labs and Centers published (C), and some perceptions of the effectiveness of Lab and Center dissemination activities (D).

A. Three Subcultures of the Educational Institution

Three different subcultures or special interest groups in the educational institution participate in disseminating R&D: (1) producers of knowledge -- the R&D community; (2) users of knowledge -- the local

practitioners, teachers and administrators; and (3) policy-makers -- parents, local school board members, superintendents, and state and federal legislators.

The producers in the educational R&D community have the following attributes: professional training as behavioral or social scientists, with Ph.D. or M.A. degrees from university departments of educational or social psychology, sociology, political science or anthropology with a primary focus on reading and publishing research findings. Their reference group is usually their peers in universities or research centers met at regional or national association meetings and conferences. They communicate in a technical social science language; their interests are on relatively narrow theoretical and technical specialties in research, research evaluation and development. These research and development specialists believe in the rational scientific method as the key to understanding their environment and usually work alone. They are supported by research grants and contracts awarded on the basis of favorable panel reviews by their colleagues. Their work is carried out in university or research organizational settings.*

The second subculture, the knowledge users, are local teachers and administrators whose role is to share their knowledge with students entering local public and private schools. They obtain their Bachelor's, Master's, or Ed.D. degrees in areas such as curriculum, administration, early childhood development, or special and vocational education. Their major focus is on the local classroom or local school where they teach children, work with parents or administer educational programs and

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*A great deal of less systematic R&D is carried out at the local school level by innovative teachers, and in larger school district and county departments of education R&D units.

support services in relatively isolated but structured bureaucratic school site settings. Their reference group is other practicing teachers and administrators met at local school districts, or state meetings and conventions. They often communicate in educational bureaucratic terminology. Their interests and beliefs are in operational teaching or administrative processes, and they obtain innovative ideas from their own practical experience or from those of other colleagues. They are supported by salaries from state, county or local school district taxes based on academic degrees earned and on seniority.

The third subculture, frequently neglected in discussions of educational R&D by professional educators, is the elected policy-maker. This includes local school board members and state and federal legislators. They are rarely trained as professional scientists or educators. They usually have other occupations, primarily as independent, pragmatic business people, professionals, homemakers, or community leaders, who are generally unsympathetic to school bureaucracies and to university researchers with their theoretically-oriented approach. Education is usually not their full-time responsibility; it must compete for their attention with other professional and personal interests in their activities throughout the community. Because they must be elected, they communicate with the lay public and believe in the authority of the democratic process. These citizen politicians hold positions of authority as decision-makers who represent a broader community of varied interests, often serving as volunteers at the local level.

Members of these three subcultures traditionally have not been able to communicate effectively nor to define problems and recommend solutions. They have been unable to see R&D as a successful strategy for

local reform, because of differing backgrounds, perspectives and expectations.

B. Stages of Educational Research and Development

A second barrier to dissemination is the complexity of the R&D cycle. It must:

- Include appropriate involvement by practicing educators and policy-makers with research specialists
- Be translated, disseminated, and adapted directly for the practitioner and policy-makers
- Have a strong practitioner and policy-maker incentive for implementing innovations at the local school level
- Be carried out through each of its stages -- through an interactive process, although not necessarily in sequential linear fashion

For this study the federal educational R&D cycle is defined as five stages: research, development, dissemination, utilization, and evaluation.

1. Research Focused on Establishing New Facts or Principles - (R&D specialists 70%, practitioners 20%, policy-makers 10%)*
    - Assess client needs (1983 reform studies represent latest national needs assessment of American education; local needs assessments are required to adapt national recommendations to local situations)
    - Carry out literature searches to discover available research and to integrate it into a form which can provide assistance in solving problems
    - Conduct experience surveys with other recognized specialists in federal, state, local or private sectors (e.g., coordinating with the educational R&D work of the National Science Foundation, the National Institute of Health, and other offices of the U.S. Department of Education)

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*Suggested percentage of time for involvement of each subculture or special interest group is shown at each of the five stages.

- Complete the scientific process of problem definition, theory and hypothesis formulation, methodological design, data collection, data analysis and interpretation, and preparation of recommendations for program or model development

2. Development of Applied Working Models - (R&D specialists 80%, practitioners 20%)

   - Design curricula, programs, products or processes
   - Demonstrate, then field test, the feasibility of new or existing programs
   - Measure results of field test and make necessary revisions

3. Dissemination of Field Test Results - (R&D specialists 70%, practitioners 20%, policy-makers 10%)

   - Translate results for targeted audiences -- policy-makers, practitioners, and other R&D professionals
   - Publish results
   - Produce and package materials
   - Advertise and distribute products
   - Transfer ownership through personal interaction at conferences, workshops, and consultations

4. Utilization by Local Schools and Others - (Practitioners 60%, R&D specialists 30%, policy-makers 10%)

   - Consult school district officials
   - Adoption by teachers, administrators, and school boards
   - Adapt for individual school or district needs
   - Technical assistance, training, and institutional capacity building
   - Implement initial program
   - Maintain on-going programs

5. Evaluation - (Practitioners 50%, R&D specialists 30%, policy-makers 20%)

- Select operational processes and outcome indicators
- Design evaluation research strategies
- Collect and analyze data and interpret results
- Recommend improvement of model for greater impact
- Report to policy-makers

C. R&D Stages: Research by NIE's Labs and Centers

These five R&D stages described above were used as categories for coding 6,918 publication and report abstracts from 1965-1983, produced by 17 Labs and Centers. Through this procedure we classified the research reported in the abstracts according to the R&D stages. Table VII shows the percentage of Labs' and of Centers' research publications for 1965-72, 1973-79, 1980-83 and overall for 1965-1983.*

Overall results from 1965-83 showed that Labs focused 24% of their research publications on the initial research stage, while Centers published 22% of their work in that area.** Labs focused 23% and Centers 24% of their publications on the second R&D stage, development. The third stage, dissemination, accounted for 37% of Labs' and 39% of Centers' R&D production. This included both reports of dissemination activities to increase knowledge and improve practice as well as research

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*Data for individual Labs and Centers were analyzed separately, and reflect wide differences as a result of their varying specializations.

**Labs published .5% and Centers 1% on basic experimental research, while the remainder of their research effort was focused on long range applied educational research related to their respective missions.

TABLE VII

PERCENTAGE (%) OF LAB AND CENTER RESEARCH PUBLICATIONS
BY R&D STAGES -- 1965-72, 1973-79, 1980-83 AND OVERALL 1965-83

	1965 - 1972					1973 - 1979					1980 - 1983					Overall 1965 - 1983				
	Research	Development	Dissemination	Utilization	Evaluation	Research	Development	Dissemination	Utilization	Evaluation	Research	Development	Dissemination	Utilization	Evaluation	Research	Development	Dissemination	Utilization	Evaluation
Labs	26	36	28	0	10	20	20	42	1	17	28	17	43	1	11	24	23	37	1	15
Centers	24	32	32	2	10	19	19	44	9	9	22	19	40	9	10	22	24	39	6	9

on the dissemination process. The fourth stage, utilization, shows the Labs at 1%, while the Centers show 6% of their research publications in that area. Finally, Labs published 15% and Centers 9% of their reports in the evaluation area.

The same basic similarity between Labs and Centers is observed when the data in Table VII is reviewed by three time periods. Articles on the research stage for both Labs and Centers were higher in 1965-72 and 1980-83 and dropped in 1973-79; while articles on development were highest for both Labs and Centers in 1965-72 and then dropped in 1973-79 and 1980-83. By contrast, the percentage of articles dealing with dissemination was lowest in 1965-72 and increased in 1973-79 and stayed high in 1980-83. The percent of articles on utilization and evaluation has never been extremely high, but for evaluation it peaked at 17% by Labs in 1973-79.

Several important conclusions can be drawn from our data: (1) We found little basic research being conducted -- it was all applied research; (2) From Table VII there appears to be no important difference among the percent of publications by Labs and Centers in the various stages of the R&D cycle -- research, development, and dissemination categories, and little difference in the utilization and evaluation categories; (3) By examining the data in Section IV from Table III, "Percentage of Research from Seventeen Labs and Centers from 1965-83 in Five Major Educational Content Areas," there also appears to be little difference between the Labs and Centers in the educational content areas in which they publish. As a result of conclusions (2) and (3) we have little evidence to support the position that NIE's Labs and Centers are

collectively carrying out R&D missions that are signifcantly distinct;* (4) Data from Table VII indicates that the greatest number of Lab and Center publications have been on dissemination. The relatively lower percentage of research publications describing utilization and evaluation activities offers evidence that local school districts are not receiving R&D disseminated by Labs and Centers.

D. Perceptions of the Effectiveness by NIE's Labs and Centers in Dissemination Activities

Data from practicing school superintendents, R&D specialists, service delivery assessment evaluators, and other special educational interest groups provide additional evidence on the effectiveness of dissemination.

1. Survey of School Superintendents: (See Appendix A, Item 6)

Ninety-three county and local school district superintendents of schools in California (12% of the total districts) responded to an open ended written questionnaire about the work of NIE's Labs and Centers. Fifty-seven percent did not know the educational content areas in which any Lab or Center was conducting research. Asked about how effective Labs and Centers disseminate their research to local school districts, 41% "did not know," 34% said "ineffective," and 25% said "effective." When asked if they had utilized any Lab or Center research products, 64% said "no" or "don't know," while 36% utilized

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*The 1983 Service Delivery Assessment of NIE's R&D Centers by the U.S. Department of Education (see Appendix A, Item 7), found that users of the Labs and Centers tend to confuse their missions, and that the lack of clarity in their roles, and lack of coordination, "adds to the field's murky picture of NIE funded R&D efforts."

some research or research products mentioning reading programs, evaluation, effective schools, and time on task.* Sixty-six percent were able to give specific suggestions to strengthen the R&D dissemination system. These include: using a consortium of local school districts, county departments of education, and professional associations; better use of the U.S. Department of Education Regional Offices and private R&D organizations and educational television.

2. National Experience Survey of Educational Statesmen and R&D Specialists: (See Appendix B)

Seventy-two nationally recognized educational statesmen and R&D specialists were interviewed about their views on the effectiveness of the federal R&D system. When asked how successful the Labs had been in reaching their objectives, 44% said "successful," 28% "did not know," and 28% said "unsuccessful." For the Centers, about two thirds or 64% saw them as "successful," (20% higher than the Labs), 17% said "don't know," and 19% saw them as "unsuccessful."

Asked how successful NIE had been in reaching its objectives, 52% saw NIE as "successful," 11% "didn't know," and 37% said "unsuccessful." Concerning the impact of the R&D work of NIE and their Labs and Centers on local schools, 64% said "some or no impact," 7% "didn't know," and 29% said "much or a great deal of impact."

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*Undoubtedly many practitioners have used ideas developed from NIE or Lab and Center research without knowing their source.

Ninety-five percent of the respondents were familiar with the National Council on Educational Research (NCER). Regarding NCER's impact on NIE's Labs and Centers 55% of these respondents said "some or no impact," 27% said they "didn't know," and 18% said "much impact."

In summary, these responses by knowledgeable, nationally recognized educational statesmen and R&D specialists do not represent a strong endorsement of the dissemination results of NCER, NIE, or its Labs and Centers.

3. Service Delivery Assessment of Labs and Centers: (See Appendix A, Item 7)

In 1982-83, the U.S. Department of Education's Office of Management's service delivery assessments of NIE's Labs and Centers showed that work of the Regional Labs was favorably received by most practitioners.

Because many Labs intentionally maintained a low profile while working with state agencies, many local school districts were relatively unaware of their existence. To solve this problem, practitioners urged Labs staff to advertise their R&D services more aggressively -- to go beyond passive dissemination to more active dissemination through workshops and conferences with local teachers and administrators.

Although certain R&D Centers were highly respected, especially in their immediate geographic regions, others were not as well known. Practitioners were skeptical of the impact of R&D on educational practices because research has not been adequately synthesized. Practitioners also tend to distrust some Center R&D because they are not consulted enough for their inputs.

Some dissemination practices by Centers have been successful, however. When the field adopts R&D products, usually it is the result of personal involvement by the R&D developer, together with follow-through assistance by trainers who adapt training materials to local needs.

4. NIE's Nationwide Lab and Center Public Hearings: (See Appendix A, Item 3)

In preparation for the congressionally mandated recompetition of Labs and Centers, NIE's 11 public meetings throughout the nation resulted in oral and written testimony from 458 persons. The transcripts included comments from four major groups or "stakeholders:" (1) Professional educators -- local teachers, administrators, state department officials and state and national educational association representatives; (2) Officials from educational research and development organizations -- Lab and Center representatives, university, and nonprofit researchers; (3) Conservative interests -- some parents and private school educators; and (4) Other non-educational interest group representatives -- other parents, business, minorities, school board members and politicians.

Except for conservative participants, most were generally supportive of the Federal Government's role in educational R&D and the work of NIE's Labs and Centers. But dissemination activities of Labs and Centers were criticized by all special interests who testified. They recommended that stakeholders be part of Labs and Centers' governing bodies, which should be changed to carry out policy-making, instead of advisory functions, at all stages of the R&D cycle.

They further recommended that Labs conduct regional R&D on the problems faced by practitioners in the field. They should be evaluated at least partly by the learning effectiveness in public school systems within the region.

Four conclusions have been reached on the effectiveness of the dissemination activities of NIE's Labs and Centers:

(1) Stakeholders do not understand differing missions, expectations and respective responsibilities because Labs and Centers lack sharp differentiation.

(2) Most stakeholders agree that the Federal Government should continue its support of NIE's Labs and Centers. But there is also consensus that, with a few exceptions, the dissemination process is not effective in reaching practitioners, policy-makers, and parents at the local school level.

(3) Stakeholders also agree that most Labs and Centers fail to create ownership by seriously involving users in policy formation and in each stage of the R&D cycle. This makes dissemination activities less likely to be utilized.

(4) Effective dissemination of R&D to potential stakeholders in our nation's decentralized system of education (over 15,500 local school districts and 3,200 colleges and universities alone) represents an overwhelming challenge to the relatively small resource capacity of NIE's 17 Labs and Centers. This striking resource imbalance argues that even greater

priority attention be given to targeting and disseminating strategies and more careful management of scarce federal resources if R&D is to have a cost effective impact on improving educational practices.

Evidence reported in this section supports the second hypothesis guiding our study that "NIE's Lab and Center research has not been effectively delivered and shared with local school teachers, administrators, policy-makers and parents."

VI. IMPROVING POLICY MANAGEMENT: NIE'S LAB AND CENTER EDUCATIONAL R&D DELIVERY SYSTEM

This study began with a question: Why hasn't federally supported educational research had a more positive impact on improving the practice of education in America? As this relates to NIE's Labs and Centers, three policy questions guided collection and analysis of data from eight research sources:

1. What research and development have NIE's Labs and Centers carried out and at what cost?
2. What has been the perceived impact of this research and development on improving the practices of education?
3. What should be the research priorities of NIE's Labs and Centers and what strategies should they utilize to more effectively disseminate and encourage use of their findings?

Five major conclusions and ten policy recommendations to the U.S. Congress, NIE, and the Labs and Centers are presented below:

A. Major Study Conclusions

1. After a review of eight national educational reform studies, we conclude that there is widespread agreement on a critical need to reform our nation's schools, as first reported by the National Commission on Excellence in Education in April 1983 (see Section II and Appendix D).
2. After completing the present policy study, we conclude that educational R&D can become a potentially powerful resource for educational reform (see Section III, Section IV B, and IV C).
3. According to Congressional mandate and the expectations of policy-makers, the R&D community and educational practitioners,

we conclude that the Federal Government has the central leadership role in funding, creating, and disseminating educational research and development to local public and private schools, colleges and universities (see Section III and Section IV A).

4. After a broad policy analysis of the past work of NIE's Labs and Centers, we conclude that educational R&D can be synthesized and adapted for the benefit, improvement and reform of American education (see Section II and Section IV C).
5. After assessments, reports, and perceptions by national policymakers, R&D specialists and educational practitioners cited in this study, we conclude that NIE's Lab and Center R&D has not been effectively disseminated (see Section V).

B. Recommendations: U.S. Congress -- Lab and Center Funding Recompetition.

Question: Should Congress continue to support NIE's Labs and Centers?

Comment: The Congressional mandate (1981) requiring recompetition of all NIE Labs and Centers in 1984 was delayed by the Senate Appropriations Committee. This delay has raised important questions about the Congressional policy making process, and has weakened NIE's credibility.

Recommendation #1: That Congress continue funding NIE's Labs and Centers through FY85 if; (1) all Labs and Centers undergo recompetition by Spring 1985; if (2) NIE designs and implements an effective policy management system for its present Labs and Centers; and, if (3) NIE officials demonstrate their capability to conduct a responsible recompetition with consultation by all major participants.

C. Recommendations: NIE's Policy Management System.

Question: How can that part of federal educational research and

development conducted through the Department of Education's NIE be managed more effectively?

Comment: NIE's authority in the federal educational R&D system continues to be undermined and subject to political cross-pressure by its multiple reporting relationships to the Department of Education, to Congress, and to NCER resulting in politicization of NIE and a high turnover of directors. Within the broad mandate provided by Congress, NIE has not carefully defined its mission and long range goals, or major research focus and has not effectively carried out its policy management role with Labs and Centers thus far.

Recommendation #2: That NIE conduct a policy management study to redefine its mission, clarify its reporting relationship to the Department of Education and improve its policy management of Labs and Centers in preparation for Congressional reauthorization.

Recommendation #3: That the mission of NIE be refined to include the following major activities:

a. Prepare for the Secretary of Education an annual "State of Education Report" to the Congress based on a yearly national assessment of student performance.

b. Conduct an indepth "Commission on Excellence Revisited" needs assessment of American education every five years from which a national R&D research agenda can be developed and updated.

c. Conduct national evaluation studies of the effectiveness of major educational programs funded by Congress.

d. Be given the responsibility by the Secretary of Education for coordinating all R&D activities for the Department of Education.

e. Identify on an ongoing basis for the Secretary of Education, all federal educational research being conducted by other departments and agencies of the Federal Government, and by state and local education agencies, colleges and universities and private R&D organizations.

f. Establish a policy management system for identifying Labs' and Centers' missions and priorities, and for better orchestrating its relationships with them.

g. Conduct at least a tri-annual evaluation with peer participation and on-site reviews of Labs and Centers and their impact on clients.

h. Appoint a permanent national advisory committee on Lab and Center policy.

i. Conduct a recompetition for each Lab and Center every fifth year.

j. Develop a national collaborative network to share information among Labs and Centers and other public and private educational foundations and R&D organizations.

k. Establish a comprehensive strategy and institutional policy for national R&D dissemination, and continue to operate the national ERIC system and National Diffusion Network (NDN).

l. Disseminate educational R&D findings to professional educational associations for their distribution to membership.

m. Design and enforce uniform policy for distribution of copyrighted R&D products of Labs and Centers.

n. Conduct a field-initiated, unsolicited proposal program.

o. Conduct competition for targeted grant research.

p. Support an annual senior research fellowship program for top Lab and Center research staff and research directors in Washington, D.C.

q. Appoint an associate director with line authority to manage policy for Regional Laboratories and coordinate policy for Centers.

r. Strengthen the role of the institutional monitors by assigning highly experienced, qualified officials with full-time responsibility for individual Labs and Centers and providing necessary travel funds for quarterly on-site consultation.

Recommendation #4: That the following 12 national R&D Centers be established in the 1984-85 recompetition (see Sections II and IV B, C):

a. Center on Post-Secondary Education

b. Center on Vocation and Career Education

c. Center for Teaching, Learning and Development

d. Center for Leadership, Management and School Effectiveness

e. Center on English Literacy

f. Center on Mathematics

g. Center on Science

h. Center on Educational and Computer Technology

i. Center on Social Studies

j. Center on Foreign Languages and Humanities

k. Center for the Fine and Performing Arts*

l. Center for Physical Fitness and Health*

Each Center is expected to address the following: philosophies and values underlying its R&D process; application of its respective subject matter focus to the needs of disadvantaged and gifted students; application of its research findings to public, private, rural and urban schools; ways in which home and community resources could strengthen the educational process; adaptation of materials for preschoolers through adults (except the Post-Secondary Education Center); and identification of the most effective methods for assessing, testing and evaluating its subject matter.

D. Recommendations: NIE's National Research and Development Centers.

Question: How can NIE's R&D Centers contribute more effectively to the reform of American education?

Recommendation #5: That the mission of NIE's national R&D Centers be to participate in the R&D cycle in the following ways:

a. Conduct assessments of basic knowledge available and synthesize it for their respective content area.

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*Although other Federal agencies have major responsibilities in these areas, it is our judgment from the findings of this project that these topics are too important not to be included in Centers where their focus can be primarily on assisting in educating our youth.

b. Conduct long-range applied, interdisciplinary educational research on areas of Center focus.

c. Continue to develop educational models, e.g. learning, curriculum, teaching; and field test their utility for practitioners.

d. Design dissemination plans, conduct dissemination activities, primarily with Regional Labs, and also continue dissemination to the education R&D community through publications and professional conferences and to university schools of education.

e. Be evaluated by NIE on the quality of their research, their reputation as a nationally recognized leader in their respective research focus and on their effectiveness in disseminating their R&D to Regional Labs and professional associations.

f. Coordinating with other federal research programs of the U.S. Department of Education (e.g. Fund for the Improvement of Post-Secondary Education, the Bilingual Education Multifunctional Support Service Centers), and such agencies as the National Science Foundation, the Department of Agriculture, the National Endowment for the Humanities, the National Institute of Mental Health, and the Defense Department (including the Office of Naval Research and the Army Research Institute).

g. Coordinating with scholars from universities and private research organizations in their specializations both in the U.S. and internationally.

Recommendation #6: That Centers appoint a strong policy governance board of 20 nationally recognized individuals including one Regional Lab director; one other National Center director; the NIE Center Institutional Monitor (ex officio); four national regional research experts; four officials from private R&D organizations, four representatives of State Departments of Education; private school representatives; representation from the American Educational Research Association; and national representatives from business and the mass media. The chairman of the board would represent the board in official approval of NIE Center contract together with executive director. Members to be appointed for staggered three-year rotating terms; and to select executive director in collaboration with appropriate university officials.

E. Recommendations: NIE's Regional Educational Laboratories.

Question: How can NIE's regional educational Labs contribute more effectively to the reform of American education?

Recommendation #7: That the mission of NIE's Regional Labs be to assist educational practitioners by:

a. Conducting or coordinating regional needs assessment studies of state educational agencies, intermediate service agencies, and local education agencies.

b. Conducting applied research on special regional educational problems within broad NIE guidelines and priorities.

c. Developing national research Center products into models for use for demonstration and field testing within local schools in their respective regions.

d. Disseminating educational R&D products from NIE's national educational Centers, other Regional Labs, other model programs developed by local school districts; and acting as a clearinghouse for local educational practitioners and state and intermediate educational service unit officials.

e. Providing limited and better targeted technical assistance and demonstration to local school district officials who have adopted R&D programs for use in local schools.

f. Conducting or cooperating with intermediate level educational agencies evaluation studies on the impact of R&D programs utilized by local schools.

Recommendation #8: That Regional Labs appoint a policy governance board of no more than 20 regionally recognized individuals. They should include at least one other Regional Lab director; one National Center director; the NIE laboratory monitor (ex officio); state school officers from the respective region; the Secretary's Regional Representative (ex officio); county superintendents, local superintendents representing rural, urban, and suburban school districts; representatives of regional educational associations; mass media representatives; and private school representatives.

F. Recommendations: NIE's Regional Educational Laboratories and Research and Development Centers.

Recommendation #9: That both Regional Labs and R&D Centers improve their capability by:

a. Sub-contracting at least 30% of their annual budgets to other researchers in public and private universities and R&D organizations.

b. Establishing a Performance Management System for all staff to include defining organizational mission, establishing long range goals, identifying short range objectives, designing management action plans and evaluating outcomes.

c. Supporting annual NIE Lab and Center fellowships for scholars, research project managers and personnel to assist them in developing skills in research, development, dissemination, utilization and evaluation.

d. Coordinating with NIE, other National Centers and Regional Labs through such methods as electronic mail, weekly or monthly newsletters, and quarterly seminars with other directors and NIE officials.

e. Recruiting regional R&D personnel to translate educational concepts into language easily understood by educational practitioners and policy-makers.

f. Holding quarterly conferences with regional and national teacher associations within subject matter specialties.

g. Developing a systematic program for publicity coverage of R&D activities.

h. Placing high priority in identifying and submitting all past and future research products to ERIC that accurately identify Lab or Center R&D output.

APPENDICES

APPENDIX A

THE PROJECT'S EIGHT MAJOR RESEARCH STUDIES

Eight major studies provided the data for this project and are described below.

Project Studies

1. An analysis of over 6900 research reports and articles published in the ERIC system by 17 Labs and Centers since 1965. Data from the National ERIC System of the research priorities of the 17 NIE Labs and Centers since 1965 was obtained, a classification design was developed, empirically tested and used as a basis for coding and analysis. Abstracts of 6918 research products were classified into a two-way matrix by research subject (61 categories) and by stage of the research and development cycle (five categories). (See Appendices E and F.)

2. A national experience survey of 72 educational statesmen, educational R&D specialists, former Directors of the National Institute of Education Lab and Center directors, national educational association directors and congressional staff. This survey was not designed as a statistically valid research study, but as a collection of general perceptions from carefully selected individuals with thoughtful ideas about the Labs and Centers. Respondents were asked for their impressions of the impact on local schools of the educational R&D work done by NIE and its Labs and Centers. They also were asked what they believed to be the most important research priorities that NIE's Labs and Centers should undertake during the next five years to reform our public school system.

Approximately half of the interviews were completed in person in Washington, D.C.; others were lengthy telephone interviews and mail

questionnaires. Rather than a traditional survey in which tabulations of responses to questions are obtained, the in-depth interview was designed to act as a stimulus for a wide range of recommendations and reactions. Coding was done by combining qualitative content analysis with quantitative tabulations into educational subject areas. Interview data provided a wealth of insights, information, and recommendations that could not have been obtained from documentary resource data alone.

3. A content analysis of the summary of the National Institute of Education's National Lab and Center Regional meetings during the summer of 1983. In preparation for the coming recompetition of Labs and Centers, NIE officials held 11 public meetings in Boston, New York, Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, Seattle, and Washington D.C. The purpose of these national meetings was to gather information from a wide variety of teachers and local school administrators, parents and citizen group representatives, state education department officials, members of local and state board of education, state legislators, educational researchers, post-secondary educational administrators, representatives of existing Labs and Centers, representatives of national education associations, and representatives of business and industry.

A total of 458 persons gave oral or written testimony at these meetings, and NIE officials summarized 1100 pages of testimony on three major issues: 1) How competition should be conducted; 2) What priority educational problems should future Labs and Centers address; and, 3) How NIE's Labs and Centers might be organized to carry out their mission most effectively. A reanalysis of the summary testimony was

conducted by the project team to determine the perspectives of the four groups who testified -- professional educators, R&D organizational officials, conservatives representing parents and private school educators, and other non-education interest group representatives. This analysis revealed a wealth of information on the performance of American schools generally, the value of R&D work carried out by specific Labs and Centers throughout the country, and strong opinions about the importance of the coming recompetition by Labs and Centers and future educational R&D priorities.

4. A content analysis of educational articles from nine public policy, educational association and educational research journals from 1962 through 1982. Several research questions in this project dealt with the need to compare the major educational policy issues articulated by leading conservatives, liberal and professional education journals of opinion during the last 20 years. These viewpoints were to be compared with the research priorities of Lab and Center research reports during the same period.

A number of assumptions were made before deciding to include an analysis of journals as one approach to answering our research questions:

1. The specific journals selected through consultation with editors and policy research centers represent the opinions of the special interest groups we were interested in studying.
2. The 20-year period 1962-1982 represents changing expectations during the 1960's and 1970's.
3. Subject frequency analysis of over 3000 articles represents reasonable sampling of opinions from each group.
4. Fair comparisons among interest groups could be obtained by prioritizing articles from each set of journals in the same content categories.

The selection process is summarized below:

1. Conservative: After some consultation by conservative policy research centers in Washington, D.C. (Heritage Foundation and American Enterprise Institute) three journals were selected for content analysis -- National Review, Public Interest, and Independent School. National Review represents a widely recognized conservative journal of opinion over the past 20 years. Public Interest represents a neo-conservative policy journal of opinion. Independent School represents the perspective of private school officials. Most conservative policy research centers had no educational policy publication. Other conservative journals like AEI's Public Opinion and Human Events are so recently published or are not referenced in the ERIC System -- a major disadvantage to their being widely read and potentially influential to the educational community.

2. Liberal: After extensive consultation with recognized liberal research policy center officials and liberal editors (Center for National Policy, Brookings Institution in Washington, D.C.) three journals of opinion were selected for content analysis -- The New Republic, Nation, and Today's Education published by the National Education Association. Other liberal journals had not treated education or had not been published long enough for inclusion.

3. Federal Government: To represent the views of the Federal Government educational perspective, American Education, the monthly publication of the U.S. Department of Education and the U.S. Office of Education before 1980 was selected for content analysis.

4. Professional Research Community: Two journals, the most widely read, Phi Delta Kappan, a monthly educational policy journal, and the major publication of the American Educational Research Association Journal were selected after consultation with officers of AERA as representative of professional educational research over the past 20-year period.

To classify the journal articles according to educational subject matter, a search was made of the national ERIC system and the Index of Journals and Periodicals. Data from more than 3,000 articles were classified by journal and compared by priority during the 20-year period. This original research presents a picture of the views of education by leading conservative writers, liberal writers, and professional and educational research specialists during the past two decades. This data was compared with the research priorities carried out by NIE's

Labs and Centers during the same period.

5. A comparative analysis of eight of the most critical research-based national educational reform studies reported in 1983. Fifteen reform studies reported in 1983 on the condition of American education were reviewed for this project. Eight of these were selected for comparative analysis to develop their findings and recommendations on reforming American education. These studies represent a massive needs assessment on the condition of American education in the 1980's and point to priorities for educational reform; they also suggest the future agenda for educational R&D in America. The eight studies selected for comparative analysis are as follows:

   A. A Nation at Risk
      National Commission on Excellence in Education
      U.S. Department of Education

   B. Action for Excellence
      Task Force on Education for Economic Growth
      Education Commission of the States

   C. Academic Preparation for College
      Educational EQuality Project
      The College Board

   D. Making the Grade
      Task Force on Federal Elementary and Secondary Education Policy
      Twentieth Century Fund

   E. The Paideia Proposal
      The Paideia Group
      Mortimer J. Adler

   F. Educating Americans for the Twenty-first Century
      National Science Board Commission on Precollege Education in Mathematics, Science and Technology
      National Science Foundation

   G. High School
      Carnegie Foundation for the Advancement of Teaching
      Ernest L. Boyer

   H. A Place Called School
      Institute for Development of Educational Activities
      John I. Goodlad

6. A state survey of 93 county and local school district superintendents in California. To determine both the visibility of and experience of local practitioners with the research work of NIE's Labs and Centers, one large state, California, containing two Labs and two Centers, and one-tenth of the nation's school population was selected for survey. Questionnaires were sent to 40 of California's 58 county superintendents ("intermediate educational agencies") and to 200 superintendents of middle-sized school districts. Because of a long-time professional relationship with these leaders, ninety-three (39%) of those surveyed returned the questionnaire. To obtain additional information and to verify their understanding of the questions, twenty-five of those superintendents who returned the questionnaire were interviewed in person or by phone. Interview questions dealt with their perception of and experience with NIE's Labs and Centers, how effective they had been in disseminating research projects to their respective school districts, and their opinions on future research priorities for the Labs and Centers.

7. A reanalysis of two U.S. Department of Education's Service Delivery Assessment studies of NIE's Labs and Centers. In 1983 the Office of Management of the U.S. Department of Education conducted a Service Delivery Assessment of NIE's Labs and Centers. The purpose of this assessment was to provide information on how the activities of the Labs and Centers were imparting educational research findings to practitioners and to determine how these practitioners perceived the quality and usefulness of these efforts. Service Delivery Assessments are not designed to be in-depth research studies or traditional program evaluations. SDA studies are designed to take "snapshots" of on-going educational programs and their perceived impact on client users. Experience samples of various practitioners are drawn and personal interviews con-

ducted to determine the effectiveness of the delivery system by which educational research from Labs and Centers are disseminated to local school teachers and administrators.

Over 900 interviews were summarized in the two SDA reports. Heavy focus was placed on the management aspects of NIE's Labs and Centers and a series of recommendations for improving management accountability were made in the reports. This data was then reanalyzed for this project and compared with interview data from the National Experience Survey and the state survey of California superintendents. This helped to determine the relative impact of NIE's Labs and Centers.

8. A review of the October 1983 reports and recommendations from the five NIE National Lab and Center study groups. To carry out a recompetition for the Labs and Centers during 1984, NIE staff assembled five study groups composed of nationally recognized R&D research specialists and practitioners to serve on the five study groups -- four to make recommendations on new Center missions and one to make recommendations on Regional Laboratories. The four panels studying Center missions included study groups on learning and development, schooling, educational policies and post-secondary education. NIE professional staff provided back-up research, convened two national meetings of study group panels, coordinated the development of study group research and recommendations and helped prepare final recommendations to the National Panel which were in turn submitted to the NIE director.

The study team for this project reviewed recommendations by the NIE study group the week of October 10-14, 1983, to compare and contrast the views of NIE staff and study group panelists with the findings of this project on such issues as the need for Lab and Center recompetition, future Center mission priorities, operation of Regional Labs, and recommendations for disseminating educational R&D to local school practitioners.

APPENDIX B

LIST OF PARTICIPANTS IN THE NATIONAL EXPERIENCE SURVEY

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Vice President
Alfred P. Sloan Foundation

Ben Lawrence
President
National Center for Higher
Education Management Systems

Leon M. Lessinger
Superintendent
Beverly Hills Unified School
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Howard Matthews
Education Staff Director
Senator Orrin G. Hatch of Utah
Senate Labor and Human Resources
Committee

Robert McClure
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Father John Meyers
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Association

Frederic A. Mosher
Executive Associate
Carnegie Corporation

Dale Parnell, President and
Chief Executive Officer
American Association of Community
and Junior Colleges

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Council of Chief State
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Mary Anne Raywid
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Paul Salmon
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Lee Shulman
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Marshall S. Smith
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Robert Smith
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Bob Sweet
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Office of the President

Robert Taylor
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National Center for Research in Vocational Education

Scott D. Thomson
Executive Director
National Association of Secondary School Principals

Rosanne Tully
Acting Staff Director
Sub-Committee on Select Education

Lawrence A. Uzzell
President
LEARN, Inc.

Andrew J. Viscovich
Superintendent
Garvey Elementary School District

In addition to the 72 individuals who participated in the national experience survey, five individuals agreed to be interviewed but we we unable to coordinate our schedules to accomplish this. They included:

Eva Baker, Director
Center for the Study of Evaluation
UCLA Graduate School of Education

Jacques Barzan
Literary Advisor
Charles Scribner's Sons

John E. Hopkins
Executive Director
Research for Better Schools, Inc.

Henry M. Levin, Director
Institute for Research on Educational Finance and Governance
School of Education
Stanford University

Lauren Resnick
Co-Director
Learning Research and Development Center
University of Pittsburgh

Seven individuals whom we contacted indicated that they would rather not participate in the survey.

APPENDIX C

FIFTEEN RESEARCH QUESTIONS GUIDING THE OVERALL PROJECT STRATEGY

A. What research and development have the Labs and Centers carried out and at what cost?

1. What have been the major policy issues guiding the research and development priorities for Labs and Centers since 1965?

2. What have been the educational research priorities actually undertaken by NIE's Labs and Centers since 1965?

3. What have been the perceived major Lab and Center educational research priorities since 1972?

4. What are the individual Lab and Center founding dates, missions, and research priorities by year?

5. What have been the total NIE annual budgets for Labs and Centers since their organization?

6. What have been the educational R&D stages undertaken by Labs and Centers?

B. What has been the perceived impact of this research and development on the practices of education?

7. How effectively have the Labs and Centers disseminated their research to local schools?

8. What are the major educational policy issues on which the recognized conservative journals have focused since 1965?

9. What are the major educational policy issues on which the recognized liberal journals have focused since 1965?

10. What are the major policy issues on which the U.S. Department of Education journal has focused since 1965?

11. What are the major policy issues on which selected professional educational policy research journals have focused since 1965?

C. What should the Labs and Centers research priorities be, and what strategies can be utilized to be more effective in disseminating and encouraging the utilization of their findings?

12. What is the Congressional mandate for future Lab and Center status and competition?

13. What are the membership, organization, process and recommendations of the NIE study groups and National Panel for the future of the Labs and Centers?

14. What should the educational research priorities for Labs and Centers be in improving local schools in the next five years?

15. What are the major research based policy recommendations by the national bi-partisan educational reform study groups?

APPENDIX D

BRIEF SUMMARY OF EIGHT 1983
NATIONAL EDUCATIONAL REFORM STUDIES
SELECTED FOR POLICY ANALYSIS

Fifteen major reform studies reporting in 1983 on the condition of American education were reviewed for this project. Eight of these were selected for comparative analyses based on the research data used to develop their findings and recommendations on reforming American education. These studies represent a massive needs assessment on the condition of American education in the 1980's and point to priorities for educational reform; they also suggest the future agenda for educational R&D in America. The eight studies selected for comparative analysis are as follows:

1. A Nation at Risk: The Imperative for Educational Reform
   National Commission on Excellence in Education
   U.S. Department of Education
   April 1983 ($4.50)
   Superintendent of Documents, U.S. Government Printing Office,
   Washington, D.C. 20402
   (Stock #065-000-00177-2)
   Telephone Charge Orders - (202) 782-3238

   The Commission, established by Secretary of Education T.H. Bell, was chaired by Dr. David P. Gardner, President of the University of California and included 17 other distinguished educators and leaders. Its purpose was to examine the quality of public and private education in the United States with special emphasis on high schools. It operated from August 1981 until April 1983 with staff support from the National Institute of Education (NIE). The Commission conducted hearings and site visits around the country, commissioned 42 papers and examined notable educational programs from over 200 schools and colleges. The report includes a set of findings together with 38 recommendations in five major areas -- content, standards and expectations, time, teaching, and leadership and fiscal support. It calls for higher high school

graduation requirements in the "new" basics, higher salary for teachers, and new incentives to attract academically gifted students into the teaching profession.

2. Action for Excellence: A Comprehensive Plan to Improve our Nation's Schools
Task Force on Education for Economic Growth
Education Commission of the States
June 1983 ($5.00)
Distribution Center, Education Commission of the States,
1860 Lincoln, #300, Denver, Colorado 80295

This 41-member on-going Task Force is chaired by Governor James B. Hunt of North Carolina and included 12 other governors, three legislators, 14 business executives, one labor leader, and ten educational leaders. The Task Force concentrated on kindergarten through 12th grade in our public schools and included a list of broadened basic skills needed for productive lives and successful employment. Its thesis is that our future success as a nation -- national defense, social stability and national prosperity -- depends on our ability to improve the education of each individual citizen. The report includes eight major action recommendations: (1) developing state plans for educational reform; (2) building partnerships among educators, business leaders and others; (3) marshalling resources essential for improving public schools; (4) expressing new and higher regard for teachers; (5) making the academic experience more intense and productive; (6) providing methods for assessing educational quality; (7) improving leadership and management in the schools; and (8) serving better those students who are unserved or under served.

3. Academic Preparation for College: What Students Need To Know And Be Able To Do
1983 (Free)
Office of Academic Affairs, The College Board, 888 - 7th Avenue,
New York City, New York 10106
($21.30 for packages of 20 reports -- College Board Publications,
Department A-35, Box 886, New York City, New York 10101)

This report is part of the CEB's ten-year "Educational EQuality Project" which was started in 1980 and has involved interviews, meetings and questionnaires with 1,400 college faculty members, high school administrators, and teachers, parents and business leaders. Its premise is that to improve preparation for college, the outcomes of high school study must be identified in terms of both specific competencies (reading, writing, speaking and listening, mathematics, reasoning, studying, observing, and the use of computers) and basic academic subjects (English, the arts, mathematics, science, social studies and foreign language). Student evaluation methods would need to change from emphasis on numbers of credit hours or courses taken to assessment and mastery of skills.

4. Making the Grade
Task Force on Federal Elementary and Secondary Education Policy
Twentieth Century Fund
May 1983 ($6.00)
Twentieth Century Fund, 41 East 70th Street, New York City, New York 10021

The Twentieth Century Fund Task Force was a group of 12 well-known scholars and educators who spent one and one-half years completing this report. It focuses specifically on what federal policy and federal programs ought to be while encouraging continued local control of our schools. To add to the wide experience of its members, a number of guests were invited to make presentations before the Task Force and a major background paper on the subject was commissioned as part of the report. Task Force members made approximately 11-12 recommendations, one of the most imporant of which was to ensure that each student develop literacy in the English language (even if necessary to divert bilingual funding for this purpose). The report proposes federal assistance for the handicapped, poor and emigrants, and outlines a federal educational role in research and development.

5. The Paideia Proposal: An Educational Manifesto
Mortimer J. Adler
1982 ($2.95)
MacMillan Publishing Company, Inc., 866 Third Avenue,
New York City, New York 10022

Mortimer J. Adler, on behalf of the 22 members of the Paideia Group has written The Paideia Proposal and two accompanying paperbacks entitled Paideia Problems and Possibilities and The Paideia Program ("Paideia" is from the Greek and signifies the general learning that should be the possession of all human beings). Their report resulted from discussions held by distinguished educators over the past year. It describes the acquisition of organized knowledge through instruction and textbooks (in language, literature, the fine arts, mathematics, natural science, history, geography and social studies), the development of intellectual skills through coaching (in reading, writing, speaking, listening, calculating, problem solving, observing, measuring, estimating and exercising critical judgment) and an enlarged understanding of ideas and values through questioning, discussing of great books, and involvement in artistic activities -- those things which all students should obtain in a common course of studies.

6. Educating Americans for the 21st Century: A plan of action for improving mathematics and technology education for all American elementary and secondary students so that their achievement is the best in the world by 1995
National Science Board Commission on Precollege Education in Mathematics, Science and Technology
September 1983 (Single Copy Free)
National Science Foundation, Washington, D.C. 20550

This 20-person Commission was established in April 1982. In addition to this present report and its companion volume of source materials, the Commission prepared an earlier report in October 1982 entitled Today's Problems, Tomorrow's Cures with wide distribution to each of the nation's 16,500 school districts. The Commission members

organized themselves into four major task forces and conducted six workshops and panel discussions, made 12 site visits, participated in 21 professional conferences, had individual meetings with representatives of over 30 societies and organizations, and commissioned reports from organizations such as The American Association for the Advancement of Science. They also reviewed successful programs of Federal and State Governments, universities, local school districts, professional associations, and business and industry. They urge an emphasis on the "thinking tools" required in the 21st century for all students, and propose sweeping changes in mathematics and science education through implementation of approximately 25 recommendations costing the Federal Government an estimated initial investment of $1.51 billion for the first year. These recommendations include formation of A National Education Council and Governors Council in the states, upgrading of teaching training, increasing teacher compensation, establishing exemplary programs and spending more time on mathematics, science and technology -- they include a list of basic curriculum outcomes for elementary and secondary courses in these subjects.

7. High School: A Report on Secondary Education in America
Ernest L. Boyer
The Carnegie Foundation for the Advancement of Teaching
1983 ($15.00)
Harper Row Publishers, 10 East 53rd Street, New York City, New York 10022

The High School by Ernest L. Boyer and sponsored by The Carnegie Foundation for the Advancement of Teaching describes a two-year study of a cross section of 15 high schools geographically disbursed which were visited by teams of educational observers for 20 days each. These teams talked with principals, teachers, students and parents, attended classes and sports events, sat in on faculty and PTA meetings, observed

councils and principals at work, and conducted extensive interviews totaling over 2,000 hours. The project was assisted by a national panel of teachers, principals, superintendents, university administrators, parents, school board members, and citizen representatives.

In this carefully documented and indexed study, Dr. Boyer provides insights and recommendations on goals, centrality of language, a required core curriculum for all students, the transition from high school to work and further education, social and civic service, renewing the teaching profession, instructional technology as an extension of the teacher, flexible schedules and school organizations, the role of the principal as school leader, strengthening connections beyond the campus, and obtaining community support.

8. A Place Called School: Prospects for the Future
John I. Goodlad
Institute for Development of Educational Activities, Inc.
1984 ($18.94)
McGraw-Hill Book Company, 1221 Avenue of the Americas,
New York City, New York 10020

The most complete research report of the eight is A Place Called School by John I. Goodlad based on an eight-year study of schooling with an indepth investigation of 1,016 classrooms, including 1,350 teachers, 8,624 parents and 17,163 students. This research was funded by 14 major foundations as well as the National Institute of Education and the Department of Education, and included an advisory committee, three members of which had served as presidents of the National Academy of Education. The study is extensively footnoted with three commissioned reports, nine massive data collection compendiums and 35 published technical reports. The research staff of professionals, research assistants, site coordinators and support staff numbered 62.

Dr. Goodlad puts his focus on the individual local school with the observation that there is much school-to-school variation in effectiveness even within districts. He organized his book around ten major themes -- school functions, relevance of school for the students, how teachers teach, the circumstances surrounding teaching, the curriculum, distribution of resources for teaching, equity, the implicit or hidden curriculum, satisfaction as a criterion of school quality, and the need for each school to obtain its own data on needed reforms. He identifies specific goals for schooling in the United States in four areas -- academic; vocational; social, civic and cultural (values); and personal. His data reveals the curricular dominance of English/language arts and mathematics, along with the consistent and repetitive attention to learning basic facts and skills in the classroom using narrow instructional activities which favor passive student behavior. In his analysis of the teaching process he found that their work and work schedules are much more like a trade than a profession. He makes a number of recommendations regarding the management rather than the instructional leadership role for principals, for master teachers with doctorates and for the creation of centers to give long-term attention to R&D in school curricula pedagogy. In addition to these recommendations for improving our present schools he also proposes going beyond the status quo in which elementary schooling begins at age four and ends at age 16 with local schools being organized into much smaller units between 150 and 800 students for primary, elementary and secondary levels.

APPENDIX E

EDUCATIONAL RESEARCH CATEGORIES

I. STUDENT DEVELOPMENT
- 1.1 COGNITIVE ABILITIES (development, problem-solving, auditory feedback, learning theory)
- 1.2 AFFECTIVE LEARNING (emotional development, psychological development, self concept)
- 1.3 STUDENT VALUES (moral values, citizenship, opinions, attitudes)
- 1.4 LANGUAGE ACQUISITION (bilingual*)
- 1.5 LEARNING DISABILITIES (emotional disturbance, deaf)
- 1.6 SOCIAL SKILLS (interpersonal)
- 1.7 *MINORITIES, DISADVANTAGED, WOMEN (cultural and sex differences)

II. CURRICULUM AND TEACHING
- 2.1 ACHIEVEMENT TESTING (test instrument, standardized tests, factors affecting motivation, measurement, performance contracts)
- 2.2 HOMEWORK (grades, study skills)
- 2.3 ASSESSMENT (evaluation studies, evaluation method)
- 2.4 *ENGLISH (reading, writing, language, literature, basic skills)
- 2.5 SOCIAL STUDIES (sociology, history, culture, economics, geography, non-western governments)
- 2.6 COMPUTER SCIENCE
- 2.7 *MATHEMATICS
- 2.8 *SCIENCE (engineering, environmental, physical, biological, impact of technology)
- 2.9 ART (music, performing and visual arts, fine art, creative imagination)
- 2.10 FOREIGN LANGUAGES/SECOND LANGUAGES (bilingual*, ESL)
- 2.11 PHYSICAL EDUCATION (health education, drugs, sex education, sports)
- 2.12 VOCATIONAL AND CAREER EDUCATION (cooperative education, driver's education, consumer education, military, youth unemployment, home economics, industrial arts)
- 2.13 CLASSROOM MANAGEMENT (setting goals; use of resources, materials and parents; teacher motivation; time on task, class size, reducing administrational responsibilities of teachers, organization of classroom)
- 2.14 INSTRUCTION AND TEACHING PROCESS (technology, T.V. and computers as teaching aids, teacher effectiveness, games, dynamics, individualized vs. group instruction, curriculum in general, non-verbal communication, authority relationships, programmed instruction, individualized instruction)
- 2.15 *PRESCHOOL (early childhood education)
- 2.16 ADULT EDUCATION (parent education, parent effectiveness, adult literacy, continuing education)
- 2.17 SPECIAL EDUCATION (main-streamed, gifted and talented)

III. LOCAL SCHOOL MANAGEMENT
- 3.1 DISCIPLINE, ATTENDANCE, DROPOUTS (delinquency, attrition, under achievers)
- 3.2 VIOLENCE
- 3.3 GRADUATION (requirements and outcomes, minimum competency, core curriculum)

3.4 TEACHER PREPARATION (education, recruitment, training, career development, master teacher, job satisfaction)
3.5 TEACHER SALARIES (contracts, tenure and merit pay, collective bargaining)
3.6 TEACHER EVALUATION (recognition and dismissal)
3.7 SCHOOL LEADERSHIP AND MANAGEMENT (evaluation, accountability)
3.8 ADMINISTRATOR/MANAGEMENT DEVELOPMENT
3.9 EFFECTIVE SCHOOLS (school improvements, size)
3.10 EDUCATIONAL ENVIRONMENT (community impact studies, family and home-based schools, public media, book censorship)
3.11 SCHOOL AND COLLEGE ADMINISTRATION (student participation, fiscal decisions, management systems, information systems, budget, goal achievement, planning)
3.12 EDUCATIONAL CHANGE AND REFORM (policy making, change agents, exemplary programs)
3.13 BOARD OF EDUCATION
3.14 ADVISORY COMMITTEES (parent participation, PTA, businesses)
3.15 EQUAL EDUCATION (nondiscrimination, race relations, women's equity, compensatory education, sex differences)
3.16 DESEGREGATION (Busing and integration)

IV. COMMUNITY AND STATE RESPONSIBILITIES
4.1 ADMISSIONS (entry, Bakke, recruitment of students)
4.2 EQUAL EDUCATION (equity, minority students)
4.3 *COMMUNITY COLLEGES
4.4 TEACHER CERTIFICATION
4.5 EXTENDED SCHOOL DAY AND YEAR
4.6 SCHOOL LAW (state legislature, arbitration)
4.7 TEXTBOOK EVALUATION AND STANDARDS
4.8 EDUCATIONAL FINANCE (taxes, tuition tax credit, state student aid, lack of funding)
4.9 HIGHER EDUCATION (faculty behavior, student protests, private colleges, academic freedom, student/professor relations, tenure)
4.10 REGIONAL OR STATE GOVERNANCE (organizational structure, business partnerships, needs assessment, planning and management system, information systems)
4.11 STATE REFORMS (exemplary programs)

V. NATIONAL RESOURCES
5.1 FEDERAL EDUCATIONAL ROLE
5.2 CIVIL RIGHTS (student rights, equal education, race relations, foreign students, desegregation, church and state, school prayer)
5.3 STUDENT FINANCIAL AID
5.4 TEACHER SHORTAGE (teacher pay)
5.5 FEDERAL EDUCATIONAL RESEARCH (NIE, Labs and Centers, NCER, statistics, NCES, measuring student achievement)
5.6 EDUCATIONAL ASSOCIATIONS
5.7 INTERNATIONAL EDUCATION
5.8 POLITICS OF EDUCATION (Reagan, Mondale)
5.9 TUITION TAX CREDITS AND VOUCHERS
5.10 NATIONAL EDUCATIONAL TRENDS (reform studies, educational issues)

*Indicates priority preferences in coding two or more categories.

APPENDIX F

STEPS IN DESIGNING THE RESEARCH MATRIX

The data analyses for this project was based on a classification design in five broad educational areas: (a) student development; (b) curriculum and teaching; (c) local school management; (d) community and state responsibilities; and (e) national resources, with 61 specific educational research content areas. This classification design was used as a basis for coding educational problems, policy issues and priorities from the eight major research studies in this project. Where appropriate, data also were coded into a five-stage cycle of research, development, dissemination, utilization, and evaluation. The steps in designing this matrix were as follows:

1. First we conceptually defined five levels of analysis or systems of educational activity, e.g., individual student development, curriculum and teaching, local school management, community and state responsibilities, and national resources.
2. We then reviewed a number of educational research studies to identify commonly mentioned topics that could be classified under each one of the five major levels.
3. Next we reviewed selected literature on models of the Research Development and Innovation Cycle and adopted a framework for coding.
4. NIE's Information Resource Center officials who also oversee the national ERIC system helped to define descriptors for each of the specific educational content areas under the five major levels.

5. The ERIC system was searched by common descriptors for citation abstracts of all articles, research reports and other research publication from each Lab and Center since 1965 submitted to the ERIC system.

We recognized that many curricular products and major activities like meetings, conferences and workshops are not described in reports disseminated through ERIC. Some curriculum products, for example, are protected by copyright and have not been submitted. Serious questions of accountability can be raised about practices that permit Labs and Centers to copyright and then sell privately products developed through public funds for the benefit of the sponsoring organization. In a number of cases several reports or publications were prepared from a single Lab and Center funded project; in other cases free lance writers may have published work describing Lab and Center projects. No attempt was made to restrict products to a single project, to associate costs with products, or to try and draw statistically significant generalizations from the data. Like most investigators familiar with ERIC we expected that it would be to the advantage of Labs and Centers to report all professionally significant research for dissemination; NIE's Information Resource Center staff estimated that between 50% and 80% of Lab and Center work would be represented in ERIC. This large publication sample base (6,918), however, does represent significant trends reflecting Lab and Center research output. If a large part of federally funded R&D is not submitted to ERIC and therefore, not made easily available to users or

researchers through ERIC, then perhaps we have identified another serious systems barrier to effective dissemination for researchers and practitioners.

6. A team of six educators were trained to code ERIC citations according to descriptors and abstracts against matrix subject matter and R&D stage.
7. Where an abstract could be coded into two clearly identified areas priority was given to the following: minority, disadvantaged and women, English, math, science, preschool, special education and community colleges. On a few occasions where abstracts included equal emphasis on two priority areas they were coded into both. Questionable or difficult to classify abstracts were referred to a single coding supervisor who also sampled coding results for reliability. The large number of abstracts (6,918), and relatively few of the 61 categories heavily used (15) suggest that coding error was not a major factor.

   Finally, no attempt was made to evaluate the quality or accountability of the research product, but only to identify into which category it best fits.
8. The final version of the matrix (see Appendix E) was prepared after a review of the coded data; it involved relatively minor modifications including the collapsing of several overlapping content areas.

APPENDIX G

ADDITIONAL DATA TABLES ON LAB AND CENTER PUBLICATIONS BY THREE TIME PERIODS

TABLES 1 THROUGH 6

TABLE 1

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S LABS PUBLISHED IN ERIC FROM 1965-72

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	English	101	15%
2	Instruction and Teaching Process	87	13%
3	Preschool	58	9%
4	Science	37	5%
5	Teacher Preparation	37	5%
6	Achievement Testing	28	4%
7	Mathematics	26	4%
8	Cognitive Abilities	23	3%
9	Vocational and Career Education	23	3%
10	Foreign Language/Second Language	21	3%
11	Assessment	21	3%
12	Minorities, Disadvantaged, Women	19	3%
13	Classroom Management	19	3%
14	Affective Learning	18	3%
15	Computer Science	18	3%
16	Adult Education	17	2%
17	Language Acquisition	16	2%
18	School and College Administration	11	2%
19	Effective Schools	10	1%
20	Social Studies	10	1%

*Percentages in this column are of all articles and reports completed by Labs from 1965-72, not a percentage of articles in this Table.

TABLE 2

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S CENTERS PUBLISHED IN ERIC FROM 1965-72

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	Vocational and Career Education	516	35%
2	Cognitive Abilities	126	9%
3	Instruction and Teaching Process	95	6%
4	Mathematics	87	6%
5	English	81	6%
6	Achievement Testing	52	4%
7	Science	48	3%
8	Educational Change and Reform	42	3%
9	School and College Administration	40	3%
10	Minorities, Disadvantaged, Women	40	3%
11	Assessment	34	2%
12	Teacher Preparation	26	2%
13	Higher Education	20	1%
14	School Leadership and Management	19	1%
15	Preschool	18	1%
16	Regional or State Governance	17	1%
17	Teacher Evaluation	15	1%
18	Classroom Management	15	1%
19	Effective Schools	14	1%
20	Social Studies	13	1%

*Percentages in this column are of all articles and reports completed by Centers from 1965-72, not a percentage of articles in this Table.

TABLE 3

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S LABS PUBLISHED IN ERIC FROM 1973-79

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	Vocational and Career Education	226	16%
2	Mathematics	188	13%
3	Achievement Testing	116	8%
4	English	104	7%
5	Instruction and Teaching Process	87	6%
6	Preschool	77	5%
7	Minorities, Disadvantaged, Women	68	5%
8	Classroom Management	57	4%
9	Adult Education	45	3%
10	Effective Schools	43	3%
11	Teacher Preparation	40	3%
12	Assessment	30	2%
13	Foreign Language/Second Language	29	2%
14	School Leadership and Management	26	2%
15	Science	24	2%
16	Student Values	23	2%
17	Affective Learning	23	2%
18	Special Education	22	2%
19	Equal Education	22	2%
20	Social Studies	21	1%

*Percentages in this column are of all articles and reports completed by Labs from 1973-79, not a percentage of articles in this Table.

TABLE 4

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S CENTERS PUBLISHED IN ERIC FROM 1973-79

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	Vocational and Career Education	1,057	55%
2	Instruction and Teaching Process	112	6%
3	English	110	6%
4	Cognitive Abilities	87	5%
5	School and College Administration	70	4%
6	Mathematics	68	4%
7	Achievement Testing	60	3%
8	Assessment	33	2%
9	Preschool	27	1%
10	Effective Schools	25	1%
11	Educational Change and Reform	25	1%
12	Educational Environment	24	1%
13	Regional or State Governance	22	1%
14	Higher Education	18	1%
15	Homework	17	1%
16	Classroom Management	17	1%
17	Foreign Language/Second Language	16	1%
18	Teacher Preparation	16	1%
19	Equal Education	11	1%
20	Science	10	1%

*Percentages in this column are of all articles and reports completed by Centers from 1973-79, not a percentage of articles in this Table.

TABLE 5

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S LABS PUBLISHED IN ERIC FROM 1980-83

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	English	73	13%
2	Equal Education	62	11%
3	Vocational and Career Education	56	10%
4	Mathematics	47	8%
5	Teacher Preparation	35	6%
6	Effective Schools	27	5%
7	Instruction and Teaching Process	27	5%
8	Achievement Testing	24	4%
9	Cognitive Abilities	16	3%
10	Foreign Language/Second Language	16	3%
11	Assessment	15	3%
12	Classroom Management	13	2%
13	Social Studies	12	2%
14	Board of Education	12	2%
15	Special Education	11	2%
16	Science	10	2%
17	Preschool	10	2%
18	Adult Education	10	2%
19	Affective Learning	9	2%
20	Language Acquisition	9	2%

*Percentages in this column are of all articles and reports completed by Labs from 1980-83, not a percentage of articles in this Table.

TABLE 6

RANK ORDER OF 20 EDUCATIONAL CONTENT AREAS
IN WHICH NIE'S CENTERS PUBLISHED IN ERIC FROM 1980-83

Rank Order	Educational Content Areas	Number of Articles	Percentage*
1	Vocational and Career Education	405	49%
2	School and College Administration	44	5%
3	Mathematics	39	5%
4	Instruction and Teaching Process	38	5%
5	English	36	4%
6	Achievement Testing	36	4%
7	Foreign Language/Second Language	24	3%
8	Teacher Preparation	18	2%
9	School Law	16	2%
10	Cognitive Abilities	12	1%
11	Federal Educational Role	12	1%
12	Educational Environment	12	1%
13	Effective Schools	11	1%
14	Minorities, Disadvantaged, Women	10	1%
15	Assessment	10	1%
16	Classroom Management	10	1%
17	Educational Change and Reform	9	1%
18	Homework	8	1%
19	Higher Education	7	1%
20	Administration/Management Development	6	1%

*Percentages in this column are of all articles and reports completed by Centers from 1980-83, not a percentage of articles in this Table.

Budget History of Labs and Centers: FY 76 - FY 83 ($ in Thousands)

	FY 1976	T. Q.*	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983
NIE Program Obligation Total	$57,454	$18,445	$57,842	$76,197	$80,154	$73,569	$65,241	$53,087	$56,614
Lab/Center Funds	26,798	2,702	25,680	27,990	29,611	30,608	30,955	28,168	29,052
Distribution by Institution:									
AEL (Lab)	1,367	532	1,108	1,208	1,365	1,668	1,668	1,503	1,857**
CEPM (Policy Management)	1,527	--	596	600	600	600	766	810	806
CEMREL (Lab)	1,654	67	2,379	2,964	2,836	2,697	2,739	2,394	499
CSE (Evaluation)	738	119	903	1,026	1,025	975	975	878	874
CSOS (Social Organization of Schools)	368	30	633	897	1,097	1,300	1,356	1,213	1,207
FWL (Lab)	2,581	649	2,615	2,940	2,752	2,750	2,749	2,475	2,820**
IFG (Finance and Governance)	1,023	--	763	900	1,091	1,225	1,300	1,170	1,170
LRDC (Learning)	2,232	--	1,907	2,402	2,519	2,627	2,627	2,364	2,353
McREL (Lab)	--	--	--	250	435	741	878	790	2,068**
NCHEMS (Higher Education)	1,527	7	1,535	1,400	1,662	1,591	1,625	1,465	1,540**
NCRVE (Vocational Education)	1,556	28	1,213	1,300	1,275	1,237	1,048	1,048	1,100**
NWRL (Lab)	3,369	594	2,719	2,620	3,165	3,308	3,308	2,977	3,011**
RBS (Lab)	3,002	655	2,877	2,550	2,615	2,632	2,607	2,346	2,334
RDCTE (Teacher Education)	725	--	1,292	1,511	1,502	1,512	1,575	1,485	1,477
SEDL (Lab)	1,649	--	1,739	1,651	1,535	1,650	1,650	1,485	1,477
SWRL (Lab)	1,500	21	1,501	1,755	1,904	2,047	1,952	1,758	1,749
WCER (Individualized Schooling)	1,980	--	1,900	2,016	2,233	2,048	2,132	2,007	1,996
[ETC (Education Tech.) New center estab. at Harvard]			--	--	--	--	--	--	714

*Transition quarter (3 months)

**Includes revised additional funding allocation for 1983